AMERICAN DYESTUFF REPORTER

"Circulated Everywhere Dyestuffs Are Used"

Published by Howes Publishing Company, 90 William Street, New York

Devoted to the practical application of dyestuffs in all industries; especially to textile chemistry—the science and practice of scouring, bleaching, dyeing and finishing.

VOL. XVII NEW YORK, MARCH 19, 1928 No. 5

The "Mildew" Effect on Silk

Lousiness or Chafe-Marks—Their Cause and Correction

A Misuse of Terms—The Cause of Chafe Marks—Nature of the Chafing Action—Treatment of Warps to Prevent Lousiness—Treatment of Damaged Goods

By FRED. GROVE-PALMER, A.I.C.

IT is a very strange habit of the human race, more especially with those who are engaged in industry, to prefer to call a thing by an incorrect name, if they are used to that name, rather than alter it to use a correct one. As an instance may be quoted the case of "Mildew" on silk, a name which is still used in a great number of the old-established silk factories, especially in England, where the conservation of tradition is almost a religion. The name "mildew" is given to the white blotchiness that is so serious a defect of dyed silk, and which we sometimes call "lousiness" for no very definite reason, or, far more correctly, "chafe-marks"; "soap-marks" is another of the muddle-headed names that is applied to this form of disfigurement. There was in past a very good reason for calling this unpleasant appearance "mildew"; this was that the workers of those days believed the marks were caused by allowing the broadsilks to lie about, during processing, in a wet condition and in this way giving opportunity for the growth of mildew. We now know, and have known for a very considerable length of time, that this is not the real cause of the fault, though it may, perhaps, have looked like it; yet the original name still clings pertinaciously.

It is a matter for regret that this defect is still so common, in spite of all endeavors to eradicate it, that there is no call for a particularly vivid account of its appearance; let it suffice to say that it is a species of hairy blotch of whitish fibrillae showing up here and there, often at frequent intervals, on any part of the piece, generally being more frequent and far more distinct in those goods which have dyed some heavy color, such as nigger, navy or black. The defect is not usually discernible when the fabric is in a wet condition, and consequently it is not until it has reached the stage of being perched for inspection that the dyer learns of the defectiveness of the batch of pieces that he has sent forward. In bad cases it is a very difficult matter to persuade the inspector that there was no sign of the fault before the goods were dried; he is often of the opinion that nothing but rank carelessness could have allowed such "lousy" or "mildewy" goods to reach him.

The Cause of Chafe Marks

The patches which give rise to the trouble are found to be composed of an immense number of minute fractured threads of the silk fiber, which are erect in position, or at least, nearly at right angles to the fiber itself, and in consequence offer a different angle of reflection to that afforded by the fiber; with the result that the light is seen under fresh circumstances, which tend to produce paleness and because of the multitude of the fibrillae, a considerable reduction in the luster. Some writers upon the subject of mildew have said that the furriness is composed of white fibers, but this is incorrect, as may be readily demonstrated by putting some pure white yarn in direct conjunction with the "chafe-marks" when it will be seen that they are colored in the same way that the main body of the broadsilk is colored, but to an apparently smaller extent. It is one of those optical illusions whereby an appearance of whiteness is produced by means of a granular surface. Two very simple experiments may be made to prove the correctness of this statement. In the first case, get a small piece of dark blue or other colored glass from a broken "daylight" lamp and cause a little patch to be etched upon its surface by means of an emery bob or some "wet-or-dry" carborundum paper. When dry the patch will be seen to be almost white in color, although we know quite well that it is nothing of the kind, being still the same color as it was previously, but the surface having become broken the light is reflected at a mass of angles and consequently it does not show up as before. Another method of testing this is to get a crystal or two of Green Copperas (ferrous sulphate) and powder

them in a mortar; the powder will seem to be while, although we know it to be green. The explanation is the same in each instance.

"Mildew" occurs not only in pure silk materials but also in any fabrics in which silk is one of the yarns employed in the weaving. Satins, crepe-de-Chine, taffetas, mixtures of silk and cotton, silk and wool and silk and rayon, any and all of them are likely to be disfigured with this scourge of the silk mill; the more tightly twisted yarns or closely woven cloths suffer to a larger extent than the light and gauzy fabrics such as chiffons and georgettes.

Another peculiarity of "mildew," to continue the employment of an incorrect title, is that it occurs to a greater extent at one time than at another, and having had this matter under strict observation for extended periods, the conclusion has been reached that the origin of the fault does not lie with processing so much as with some natural deformity of the silk itself. There is, of course, no argument against the statement that the actual fault is caused by the processing, but it is a fact that the same processing does not always promote the fault in apparently similar silks. If it were possible to prove this and to say definitely that the "lousiness" is due to a bad lot of silk, the blame which now attaches to the mill-handling would be removed, but there does not seem to be any method by which this can be definitely proven. If we could say that mildew only appears upon silk that is grown when the weather has been fine or bad or when there has been a lot of rain or a drought or when the climate has been very varied or because there has been some innovation in the care of the worms or some carelessness over drying the mulberry leaves or some one or more changes in procedure—of which hundreds are possible—between the moment when the silk moth lays her eggs upon the hatching cards until the finished fabrics are on the inspection perch; in short, if we could say that we know what causes mildew we could probably absolve the mill from blame altogether, but until that happens the mill will be blamed for carelessness as heretofore.

We have, in the course of continued work on the subject, established two points beyond any doubt; these are: (1) Some varieties of silk are more prone to be disfigured by "chafe-marks" than are others; (2) the "chafe-marks" actually arise during the working of the silk in the various processes through which it passes in the boiling off, dyeing and finishing. And because of this latter fact, it is urgent that everybody who has a hand in the milling must exercise the utmost care throughout the whole period that the silk is being handled.

Nature of the Chafing Action

The most common reason for the appearance of "mildew" is the rubbing of the surfaces of the cloth against each other, and hence the title "chafe-marks" is the correct one for this defect, as by the rubbing or chafing of the silk over itself the tiny fibrils are scratched up and, when dry, tend to stand erect like the quills upon the fretful porcupine. It is sometimes stated that the chafing effect may be artificially reproduced by making two pieces of silk adhere to each by means of a solution of soap, and then, when they are dry, pulling them roughly apart. It does not produce the effect in all cases, and it is of little value, as it bears absolutely no resemblance to the facts as they are in the course of work in the dyehouse. In the course of his researches the present writer has never succeeded in reproducing these "chafe-marks" at will in the laboratory, even with that same silk material that showed it only too freely when milling in the factory under ordinary works conditions. It was thought that by soaking pieces of the fabric and chafing these together vigorously it would be possible to reproduce the natural marks, but it was not so; it evidently requires the slow, steady rub of the full lengths and full weights for the full length of time to produce this annoying defect. By stopping the processes at various stages and extracting pieces from the batch, and then drying these up and perching them, it was shown without any chance of doubting that the "chafe-marks" arise in any or all of the processes of boiling off, rinsing and tinting.

In discussions upon this subject some authorities have brought forward the view that "mildew" may be caused by working the goods in baths in which the active chemical constituents are in a much too concentrated condition, though there is every reason to doubt the accuracy of this statement. The boiling-off bath made up with soap in the correct proportions and the usual dye baths that are employed cause no trouble with silk under proper working conditions, and if the alkalinity of these baths were made too strong it might destroy the fiber; but the author has not been able to reproduce the bad effect of "mildew" in actual work, nor has he been able to find records of it having been produced by other investigators in this way. There appears to be little, if any, room for doubting that the defect is produced entirely by mechanical means. The silken thread that is used on the looms is composed of a number of thin threads twisted together, and these in their turn are made up of many fibers from the cocoons twisted together when the silk is undergoing the process of reeling at the filatures. Bearing these facts in mind, it is not difficult to realize that if the yarn, after it has been woven, is exposed to the continuous action of rubbing against itself while it is in a wet state the tendency will be to fray the fibrils and cause them to exhibit their ends when the cloths have been dried. If the fabric is examined before it has been degummed, no trace of such irregularities can be seen, because the sericin or silk-gum has protected the fibers during the processes before and during weaving. But after this gum has been removed, the fiber is without the protecting coating, and consequently there is the greater liability for weakness to show itself. A further

proof of this may be found by studying materials made of schappe silk, or, as it is more usually called, "spun silk," in which the yarn is composed of short fibers of silk wastes which have been spun into threads as opposed to the more usual reeling of long fibers; in such materials the appearance of "mildew" is even more common than in ordinary silk because of the shortness of the fibers employed.

Treatment of Warps to Prevent "Lousiness"

The avoidance of this appearance of "lousiness" is by no means simple, but if we remember that its real name should be "chafe-marks" it is possible to adopt a number of precautionary methods which need to be introduced at every step of the milling procedure. It is not of the faintest use bringing in these precautions with a flourish of trumpets and, after proving their value, allowing them gradually to fade out of use. So often this will happen in a mill: a method is perfected and each of its stages carefully tested and proven, and all goes well for a time; then gradually there is a falling off in quality, and so far as can be ascertained everything is proceeding according to plan and yet the results are not coming through as they should. It is not until the manager sits down on the job, and watches every move as a cat watches a mouse, that he will find how many of his prized rules are being broken, perhaps inadvertently, by the introduction of a new operative who has not been thoroughly coached in the necessity of knowing his work and sticking to it.

One plan that was introduced with marked success was to work the warps before weaving through a specially constructed sizing bath. The material used in this case was Tragasol, which is a gelatinous solution made from the seeds of the locust-bean (*Ceratonia siliqua*), which is the pod of the Carob tree and is very useful for fattening cattle. It is possible to make this solution, but it is easier to buy it, and the quality that is lettered "P. C. D. X." has been found the most generally useful for this and other purposes in the mill. Many trials were made to ascertain the best proportion to use for this purpose, and finally it was found that the formula below would give the best results:

P. C. D. X.	10 gallons
Boiling water	25 gallons

It was found that not only was the weaving materially assisted by the padding of the warps through this solution, but there was also very little friction in the dents of the reeds. Although the examination of the newly woven broad silks does not show the "chafe-marks," it was practically certain that not a few of them are actually due to this friction, because the warps, which had been treated with the sizing solution mentioned and which were made from the same silk and were subsequently treated in exactly the same way, showed considerably less of the defect than the untreated pieces.

If this were the only treatment needful to put an end to this constantly recurring fault, the life of the silk producer would indeed be easy; but more are requisite if the gentlemen at the inspection perches are to be saved from the state of gloom and despair in which they habitually exist.

The boiling off of the silk is one of the processes that must be taken in hand, and here every precaution must be taken to prevent the friction of piece against piece. Most up-to-date mills have introduced some process for the better degumming of heavy silk goods, and all of these have their merits. In some places the fabric is fastened to frames which sway gently to and fro in the boil-off liquor; others enclose the goods in cotton bags, but there are disadvantages with this, as it occasionally occurs that the gum is not entirely removed from the center of the bag. Perhaps the best plan is to wind the pieces onto a large wheel built on the spiderweb principle and allow this to rotate in the bath. Whichever system is adopted the main idea governing it must be the total prevention of all rubbing of the surfaces of the silk on itself, while it is in contact with the hot soapy liquid which renders the silk-gum soft enough to be washed away and thus exposes the fibroin to the action of chafing. Consequently any method that allows the broadsilk to be treated while it is flat and avoids rubs is a good one.

When such materials are being colored, especially in the darker shades, the old-fashioned habit of doing it in the rope should be cut out; there is no doubt that very much of the trouble arises here, and the introduction of the oval wheel form of dyeing machine will prevent to a large extent the occurrence of this defect. Of recent years there has been a marked improvement in dyeing machinery, and any dyehouses that have not scrapped their old-fashioned plant would be well advised to do so at the earliest opportunity, for in dealing with a material of the costliness of silk nothing but the best is good enough. And another very important point to be remembered is that every man and woman employed in the handling of silk should have it constantly impressed upon him or her than the material is valuable and delicate. The payment of a bonus upon all pieces passed with a deduction for those not passed by the inspectors is an excellent method of assisting in the production of good broadsilks.

Treatment of Damaged Goods

It is a trite saying that "prevention is better than cure," but it may easily happen that there is a quantity of damaged material already on hand, and the necessary machinery for prevention may not have been actually started up, from one cause or another. This accumulation of damaged goods may possibly represent a considerable number of idle dollars, and if it must be sold at reduced rates may affect the finances of the department to the extent of needing red ink for

the figures. It is therefore needful that there should be some means of dealing with such goods, and, if possible, treating them in such a way that they may be presented for sale as perfect goods or nearly so.

The research department was occupied for a considerable time in finding a way that was a commercially profitable proposition of dealing with the problem. Eventually one was discovered that had the merits of being fairly cheap, comparatively easy and remarkably efficient. This was the way of it:

The faulty material was run between two felted bars, of which the one below was immovable while the one above was connected with an eccentric, giving it a motion sideways and a sliding that had the effect of a smoothing iron; the felts were kept wetted with a liquid that had been carefully prepared for the purpose, so that as the fabric was passing between the jaws it was being flattened and thus the little upright hairs or broken fibers of silk were pressed down and kept so by means of the moisening fluid that was on the surfaces of the felt-covered bars. It was not altogether an easy matter to discover a liquid mixture that was entirely satisfactory. Many tentative experiments had been made with oils of various kinds, some of which were successful so far, but there was always the tendency for them so to stain the silk that it was unsalable. A modified oil was sought and the best result was obtained by dissolving half a pint of the best medicinal castor oil in two and one-half gallons of denatured alcohol. The purest oil obtainable was used in order to insure perfect freedom from odor and also to avoid any chance of discoloration; the extra cost is a matter of little moment as so small a quantity is required.

The results obtained were so good that even the lightest shades could be successfully treated, and the process was made part of the regular round of finishing operations, until such time as finances would allow of the installation of improved machines.

AMERICAN HOME ECONOMICS ASSOCIATION OFFERS TEXTILE RESEARCH FELLOWSHIP

The Textile Section of the American Home Economics Association, through its standardization committee, offers a fellowship of $300 to be used during the school year 1928-1929 at a college or university of recognized standing. The research involved is to be done under the direction of a member of the staff who has made contributions in the field of textile research.

The candidate must be a woman holding a baccalaureate degree from a college or university of recognized standing, and she must offer a major in textiles with a minor in physics or chemistry or a major in physics or chemistry with a minor in textiles.

The candidate will be required to spend the school year (nine months) of 1928-1929 at the school chosen, devoting at least one-fourth of her time to research in the interest of textile standardization. She will be required to submit (in person, if possible) a report of her research to the Textile Section at the annual meeting of the American Home Economics Association during the summer of 1929.

Application blanks can be obtained from Prof. O. Settles, Division of Home Economics, Iowa State College, Ames, Iowa. April 1, 1928, is the latest date at which applications will be received.

DOORS TO OPEN ON LARGEST KNITTING ARTS SHOW APRIL 16

Convention Program Promises an Active Session—Machinery Exhibits Hold Many New Features

Members of every branch of the knit goods industry will entrain for Philadelphia some time during the week of April 16 to gather for the trade's Twenty-Fourth Annual Convention and Knitting Arts Exposition. Not only the manufacturers of knitted wear and of knitting machinery and mill equipment will be conspicuous at this notable exposition, but large numbers of dyers, chemists and others connected with the wet processing of knitted textiles will visit the exhibition hall of the Commercial Museum while the show is on.

The biggest exposition in the history of the trade is promised by Chester I. Campbell, manager of the event, in his announcements. Not only will it probably be marked by a larger attendance than former years, but the exhibits lined up for the show itself indicate that a number of unusual features will distinguish this year's event above its predecessors. For the first time in any exhibition hall a full-fashioned hosiery machine will be displayed in operation. The latest developments of the rayon industry will be presented to the public in the form of innumerable products of recent invention.

The convention and exposition provide a connecting link between the three branches of the trade, viz., the manufacturer, the jobber and the retailer, contributing in a substantial way to the general welfare of the whole trade.

Round table discussions and general sessions for the transaction of business of vital importance to the trade will take place in the convention sessions presided over by President D. L. Galbraith, of Bay City, Mich. The election of officers of the association will be followed by the annual luncheon Wednesday noon when more than 500 members of the trade will be served.

A significant assurance of the greater success of the 1928 exposition is the fact that the number of exhibitors who have signified their intention of exhibiting is greater than that enrolled in any previous year.

Proceedings of the American Association of Textile Chemists and Colorists

The American Association of Textile Chemists and Colorists

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FEBRUARY MEETING OF THE NORTHERN NEW ENGLAND SECTION

A very interesting meeting of the Northern New England Section of the American Association of Textile Chemists and Colorists was held at the University Club, Boston, on Saturday, February 4. About forty members and guests were in attendance.

Edward W. Gallagher, merchandise manager, Boston Better Business, spoke concerning the purpose, program and results accomplished by the Bureau, and read a paper, "As the Public Sees It." His paper appears in full below.

William F. Davy, adjustment manager, William Filene's Sons Company, also spoke along the lines of his experiences in adjustments. His subject was, "As the Public Wants It." An abstract of this address follows.

The Section was honored by the presence of President Killheffer, who spoke briefly.

The meeting adjourned at about 8.15 p. m. with a rising vote of thanks to the speakers.

A. K. JOHNSON, *Secretary.*

As the Public Wants It*

By WILLIAM F. DAVY
Adjustment Manager, William Filene's Sons Co.

Mr. Davy said that trouble-making dyes should not be used, but that often fashion demands them. We want the styles from Paris, but when people buy these colors they also want wear. Mr. Davy mentioned the chief causes of complaints. Perspiration is a chief factor. Expensive losses come from spotting with rain water. There is the crushing of pile fabrics and fading. Shrinkage of cloth, even before it is sold as well as afterward, means a heavy loss to the adjuster. Perspiration preventatives now commonly used seem to cause the rotting of silk. Adjusters have trouble with the spreading of the fiber under heat, which leaves holes in the cloth. The heavy loading of silks is believed to cause loss from cracking. Another curious kind of loss is called winter damage to cotton fabrics. Little ragged holes appear all over the fabric or garment.

Mr. Davy also remarked that for reasons of policy the adjusters usually did not pass on complaints and damage claims to the manufacturers. To open the discussion of this paper, Mr. Christison said that manufacturers de-

*Abstract of an address delivered at the February meeting of the Northern New England Section of the American Association of Textile Chemists and Colorists, with summary of the discussion that followed.

lighted in receiving complaints, but that frequently retailers did not appreciate good work and would not pay for it. Regarding winter damage, he said that such results sometimes came from frozen garments which were broken while swaying in the wind.

Mr. Spurr inquired if the garments commonly became shorter as well as tight by shrinkage. Mr. Davy said that some garments would shrink so rapidly in a rainstorm that it was not safe to wear them out-of-doors. Mr. Grady inquired on what fabrics the light-fugitive shades were found. Answer: Mostly on wool.

Mr. Putnam emphatically advised the consumers to demand light-fast wool, and said that good wool-blues were available.

Mr. Moran inquired if winter damage to cotton fabrics was often reported. Answer: There have been several complaints, and these were not from frozen garments.

Mr. Zillessen inquired if the adjuster's store was selling edible shirts, saying that the mice in his house had an especial preference for certain kinds of shirting.

Mr. Davie remarked that his people had concluded that the damage was due to something that worked in the dark and not in the sunlight. Some sort of germ, perhaps.

Mr. Moran did not think that mildew was a likely cause.

Mr. Caffray remarked that much trouble came from acid from storage batteries.

Mr. Bannan remarked that in certain localities sulphuric acid or acid fumes have been found in the atmosphere.

Chairman Leitch then introduced President Killheffer as a visitor to the Section. Dr. Killheffer remarked that he had come more for fellowship than to edify. After telling an interesting anecdote, he remarked that, although it was difficult for the consumer to communicate with the producer, yet, after all, it is a matter of the public saying what it wants plainly enough. Satisfactory dyes are on the market. Dr. Killheffer then proposed for examination and discussion the question of whether it would be wise for our Association to set up a Central Technical Bureau which would include a testing laboratory. The efforts of sundry associations to secure satisfactory fabrics could be correlated in this bureau. Needless to say, this would have to be carefully set up and supervised, and would take a lot of money. After several years, on account of the volume of work available, it would be self-supporting. We have a finance committee already and wish to furnish them with the right kind of a big idea on which to work. There are so many propositions toward the making and merchandising of better goods with fewer complaints that it seems some central bureau under auspices like ours must tie them all together. Previous to this last remark Dr. Killheffer declared that a vast amount of work was already being done in the testing of fabrics, even by people poorly equipped. He believed that the standards of our research committee and of a technical bureau, if we had one, would be a real asset, tending to enable various other associations to make their guarantees as to grade satisfactory to the consumer.

Dr. Killheffer then told a story about the little boy who asked, "How many mills make a cent?" The father, following the custom of mill men, said, "Not one."

Chairman Leitch thanked all the speakers and brought the meeting to a close.

As the Public Sees It*

By Edward W. Gallagher

Merchandise Manager, Boston Better Business Bureau

Business needs an interpreter. The public cannot understand the conditions and practices existing in many lines of business and does not see business as business thinks it is seen or likes to be seen.

On the other hand, business does not understand the public; does not seem to meet public opinion, to answer it, or change it. Business needs three mirrors—one that business might see itself pass by; another that it might see itself as the public sees it; and the third to show how it should be seen—to reflect its ideals, plans, standards and service to the public.

In many ways the Better Business Bureau is the interpreter—interpreting business to the public, and the public to business; a mirror showing business its own ugliness, reflecting public opinion and revealing to the public the sincerity, honesty and service of practically all business. The Better Business Bureau is representative of business caring for business interests by protecting the public interests.

Trade customs or practices, followed by all in a particular field, are the common cause for loss of public confidence. For example, when the Boston Bureau first started all advertisers were using misleading fur trade names. There were half a hundred such names as Baltic Seal, Bay Seal, French Seal, Arctic Seal, Real Seal, etc., all used to describe fur coats actually made of rabbit skins which chemists and colorists had "doctored" to look like seal. Hundreds of other misleading fur trade names were used to describe other inferior imitations. The public finally rebelled against this, so that through the agency of the Better Business Bureau advertisers eliminated misleading trade names, or qualified them with the true pelt name. For example, French Seal (dyed rabbit) or seal-dyed rabbit.

Manufacturers of blankets have been playing with pub-

*Paper delivered at the meeting of the Northern New England Section held at the University Club, Boston, February 4.

lic confidence for years by using labels and advertising describing blankets as "part wool." Investigation by Better Business Bureaus proved that the public expected more in the term "part wool" than many manufacturers were giving. By actual tests some "part wool" blankets were found to contain as little as 3% wool—not quite enough to keep warm in zero weather.

The Better Business Bureau reflected public opinion for blanket manufacturers, and as a result the producers of 75 per cent or more of all the blankets made in this country have agreed to give the percentage of wool in so-called part-wool blankets, on all labels, in advertising, etc., this ruling to take effect no later than November 1, 1928.

Some manufacturers will now be forced to use real advertising to show why their blankets should be purchased in preference to others, because no longer will the 3% wool blanket be in the same company with the 50% wool blanket masquerading under the label "part wool."

Overweighting of Silks

Lacking proper standards for their product, about three years ago many radio battery manufacturers were forced into a competitive price battle. A battery for a price lower than others was the demand. In meeting this demand, manufacturers took all they could off the price and then started taking it out of the battery, the natural consequence of a similar situation in any trade. The result was oversized batteries, sub-standard plates and boxes, and even, in the worst cases, sawed-off plates with boxes filled with cement to give weight.

These conditions were eliminated by the establishment of standards through the agency of the Better Business Bureau.

To-day the public is suffering from another form of weighting—the overweighting of silks. Here again the manufacturers are failing to control public demand. Overweighted silks are probably caused by the demand for fabrics at a price, made to look like something better at a higher price.

Retailers, wholesalers and manufacturers encourage this condition by their desire for quick profits and their failure to educate the public. Retailers encourage it by constantly using the price appeal in advertising. Manufacturers encourage it by selling to retailers solely on the price basis and failing to supply retailers with information that would enable them to sell merchandise on its merits—its serviceability or quality as proven by facts.

Manufacturers of praiseworthy goods are responsible, to a great extent, for the production of inferior and unserviceable goods palmed off on the public with resultant injury to the entire industry. When a producer of a serviceable article, sold at a reasonable price, fails to give complete facts showing why his article is so serviceable, and merely describes it as "soft texture," "fine," "lovely," "beautiful," "snow-white," etc., he is paving the way for another fellow to make something he will claim "just as good," to sell at a lower price. As the public sees it, it is "just as good" because he advertises it in the same way—"soft texture," "fine," "lovely," "beautiful," "snow-white," etc., all of which may be true. Truthfully, however, it is not "just as good," but the public buys it because it costs less. The consumer is not given the facts by which to make a wise choice.

This association of textile chemists and colorists is composed of men who have the real selling facts about textiles and manufactured textile products. These facts are not given to the public. They are probably pigeonholed and dusty in your desks, or perhaps there is lack of co-operation or co-ordination between your department and the advertising or sales department.

Recently I talked with a textile engineer who represents several large corporations. He showed me results of hundreds of tests he had made of his clients' products, showing color fastness, washability, strength, serviceability, etc. Competitive tests were also made. All the tests were beautifully bound in book form. The tests were remarkable indorsements. I was astounded to learn, however, that none of this information was passed along to the public, and that the products were advertised with the usual line of dictionary terms—superlatives and meaningless descriptions—and sold to retailers on a price basis only.

There is a wonderful opportunity for business to-day to educate the public to cultivate public taste for things of serviceability and quality. The public must be taught how to buy. The public will not buy unserviceable goods when it can get serviceable goods at the same price or a few cents more, but it must have the knowledge to choose. That knowledge is now in the notebooks and the beautifully bound reports of textile chemists and colorists. Will you let it stay there?

Recently I clipped four advertisements about four different sheets from the same issue of a woman's magazine. Three of the advertisements said nothing, and said it almost in the same way. In fact, the names in the ads could have been interchanged without harm to any.

The fourth ad graphically portrayed the result of tests of the sheets through mangle and wringer, and offered readers a booklet on how to know how a sheet will wear. I presented all four ads to several women and all said that this last ad "sold" them. It gave proof.

With such a plain article as sheeting there's an interesting, instructive story to be told showing that quality depends upon the length of fiber used, type of yarn produced in spinning, closeness of weave, breaking strength, finishing, etc. All these factors are indicative of quality

and serviceability. If sheets are advertised merely as "sheets." it's easy for an inferior sheet to be advertised "just as good." A sheet is a sheet, but wearing qualities differ.

The dyeing and cleaning industry in this country affords a good example of the lack of public education regarding textile fabrics and what to expect of them. The practice with the less responsible dyers and cleaners is to take anything submitted to them, to hand the customer a claim check on which is printed a statement, "We do not guarantee . . . etc." Most often the customer does not read this check or realize its importance, and is therefore unprepared for the shock when her dress is returned to her in shreds and the cleaner points smilingly to her claim check reading, "We do not guarantee." Who can promote public confidence in this way?

Many cleaners have been explaining at the wrong time —after the damage is done instead of before. No amount of explanation can make a good customer when she sees her dress in ruins. The dyeing and cleaning industry should present its case to the public, telling of conditions beyond the control of manufacturer, retailer or cleaner which are apt to cause damage in cleaning an article. Why shouldn't the industry give the facts to the public? Why don't dyers and cleaners tell the public that there are certain fabrics that will not clean, and why? What is the objection to telling the public that in many cases damage to merchandise is caused by sunlight, perspiration, grime and grit, gases from coal, radio batteries, etc., etc.? This should be done by constructive publicity. You can make a woman see these things before her dress is ruined, but not afterward.

Education of the public in this way will lead to customers' asking retailers about the cleanability of fabrics and garments before purchasing, will make retailers more careful about the selection of their stocks, and might lead to the rating of fabrics and garments as to cleanability.

There probably is not another trade association that is doing more research work than the National Association of Dyers and Cleaners, but very little of the results of their research reaches the public. Various departments of the Government, particularly the Bureau of Standards. has conducted extensive investigations of various lines of merchandise and has issued bulletins, but there is little attempt, if any, to pass the information along to the public. For example, the Bureau of Standards has issued a booklet entitled "Effect of Dry Cleaning on Silks—A Comparison of the Effect of Dry Cleaning and Some Service Conditions on the Strength of Silk." This is a very complete study and deals thoroughly with the subject of weighted silks and its reaction to various conditions. Why should dyers and cleaners lose public good-will in trying to explain damage to customers after the damage is done, when an official report of the United States Government may be used in educational publicity to avoid the necessity of such explanations?

Recently the National Association of Dyers and Cleaners inaugurated a plan to issue publicity designed to guide the public in its purchases.

F. J. Schlink and Stuart Chase in "Your Money's Worth" say, *"Give the public the facts so they may know what they are buying."* Textile chemists and colorists have always had the facts and specifications, but have not given them to the public.

The graduate chemist in charge of R. H. Macy & Co.'s Bureau of Standards said recently that his store follows the example of the Federal Government in passing on the value and quality of contemplated purchases and checking up on the service and performance of the merchandise afterward. He predicted the time when the individual customer will purchase by specification. Standards will be established for each type of merchandise and the public will buy on the basis of these standards properly and accurately noted on labels. Retailers will buy according to specification, thus protecting manufacturers from unfair competition on the basis of inferior quality.

Perhaps some of you are acquainted with trade practice in guaranteeing fabrics as to color fastness, washability, etc. As the public sees it, this practice is contradictory. Guarantees generally mean that if an article does not turn out as guaranteed it will be replaced by another. Isn't this an admission that the guarantor is not sure about his guarantee? If there is such a thing as a "fast color," what could be stronger than to say "this is fast color"? Why make a guarantee and create suspicion that it is not "fast color"?

Guarantees are too often abused. Tire manufacturers, hosiery makers, watch-case makers, have all eliminated guarantees because they were abused. Let manufacturers give scientific facts about their products and guarantees will not be necessary. The truth is the best guarantee.

Responsibility of Trade Groups

Upon manufacturers rests the responsibility of choosing between quality and quantity; novelties and fads or serviceable merchandise; of encouraging retailers to buy merchandise on merit rather than on price; the responsibility of going direct to the public with the facts, and thus controlling public demand.

Upon retailers falls the responsibility of educating public taste, directing public opinion and buying tendencies; of training their salespeople so that they may be of assistance to the public in buying, so that the public will buy the proper fabric or garment for the purpose intended. Upon retailers also rests the responsibility of putting more science and less bunk in advertising, more knowledge and less persuasion.

Consumer Responsibility

George H. Johnson in his recent book on Textile Fabrics gives the following as responsibilities resting upon the consumer:

1. The choice of fabrics for the wear they will receive regardless of price.

2. The choice of fabrics with consideration to wearability, washability and cleanability.

3. Consideration of the relationship of weave to wear. The simpler the weave the longer the wear, under ordinary conditions.

4. The danger of purchasing defective or inferior merchandise.

5. Realization that "wear depends upon the care."

FEBRUARY MEETING OF THE NEW YORK SECTION

The February meeting of the New York Section of the American Association of Textile Chemists and Colorists was held at the Alexander Hamilton Hotel, Paterson, N. J., on February 24, 1928, and about eighty members and guests attended the informal dinner, while the total attendance for the meeting proper was about one hundred.

S. L. Hayes presided in the chair. The business consisted of the reading of the minutes of the last meeting. There were no reports of committees. The speakers of the evening included the President of the Association, Dr. E. H. Killheffer, who outlined the proposal to establish research and service facilities, in the form of a Technical Bureau, as an addition to the activities of the Association. Other speakers and their subjects were: Dr. W. M. Scott, on "The Fastness of Colors as Related to Silk"; E. Freedman on the "Examination of Textiles from the Retailer's Point of View," and L. C. Himbaugh on "Standardization of Laboratory Tests on Dyed Fabrics for Fastness to Light and Washing." Each of these speakers proved to be very interesting. The meeting adjourned about 11 p. m.

The papers, addresses and discussions follow:

Chairman Hayes—I presume that most of the members of the Section realize that the New York Section stands high in at least the number of national officers that are members of our Section. This is the first time that a member of the New York Section has been president of the National Association and the first time that a member of the New York Section has appeared before the Section in his official capacity as President. It is with a great deal of pleasure and with a great deal of pride as a member of the New York Section that I introduce our National President, Dr. Killheffer. (The members arose and applauded.)

Proposed: A Technical Bureau for Our Association

By Dr. Elvin H. Killheffer

This is the first opportunity I think I have had to attend a meeting of my own Section since I have become President of our Association.

On some past occasions when I have had the pleasure of talking to you, I have played the fool more or less and told you a few stories that I thought might get a laugh, but to-night I expect to get away entirely from the former role and to keep my remarks in a more serious vein.

I wrote out a title or a subject on which I expected to talk, something like this: "A Proposed Activity of Our Association." By the time I received my notice I found that the proposal had already become a plan, for which I am very thankful, and I hope that we can bring the proposal to where it will be a plan.

Some time ago the Council appointed for the Association a Finance Committee, with J. J. Wood of this Section as Chairman. That Finance Committee was appointed obviously for the purpose of raising money. The purpose of raising the money was for the furtherance of the work of the Research Committee of the Association.

You are all familiar, doubtless, with what that work has been up to the present time. But when you go out to raise any considerable sum of money you can't very well raise nearly what you would like to raise unless you have something pretty definite to sell to the man from whom you expect to get the money. We felt, therefore, that there was a very real need at the outset for some new ideal, if you please, which might catch the imagination, or for the creation of an idea which might be the crystallizing point for some enthusiasm—because there must be considerable enthusiasm if you are going to raise considerable money, as those of you who have participated in any money-raising campaigns doubtless know.

To get without further ado to what the proposed idea is, I will state that it is simply this: the creation or the establishment of a technical bureau and laboratory of and for the Association. I shall make a few general observations and then come back to the main idea that we have in mind.

What Co-operative Effort Can Do

I think we all realize fully the value of co-operative effort. I could draw many examples to your attention, but that is more or less needless. I shall refer to but two with which we are all familiar. One is the organization of the Cotton Textile Institute, which, organized as it is,

is expected to be productive of very substantial results chiefly because the efforts are co-operative and they are properly co-ordinated in one central association.

Next we can take the example of our own Association and the work that it has done up to the present time through its Research Committee. The past accomplishments of our Research Committee, I think, are but a very faint promise of what the future holds in store for us if we go seriously at any work that might naturally follow along in a research body of any kind in this or any other association.

You need only look at the immense amount of work which, in my opinion, is a real accomplishment, that has been done so far by our Committee on Light Fastness, if you please. There has been a tremendous amount of work done, which undoubtedly is but a groundwork for some definite conclusions that can shortly be drawn and some definite standard methods which we hope will soon be promulgated for the determination of light fastness in fabrics, so that this Association and researchers everywhere can use the same methods and have some reasonable expectation of getting the same result.

What is generally true as to co-operation in other lines of endeavor is doubly so in respect to research, whether that research be in pure science or in industrial research.

Secretary Hoover recently, in an interview that I think was published in the Textile World, among other things said this: "What is needed most is a different mental attitude toward pure science."

When you substitute research for pure science in that thought, you come to a consideration of a fact that the dyestuff industry has realized for a long time; that is, the absolute necessity of regular research. The textile industry, on the other hand, as a whole, has been very much behind in its realization of the real valve to it of any research work. There have been exceptions, it is true, but as a whole I think my remark holds true.

The textile industry is—it must be—the chief beneficiary of any work that is done by our Association or its Research Committee, but the interest of the textile manufacturer, of course, is not any larger than the interest of the dye manufacturer, because the dye manufacturer, after all, has an equal interest in that progress and depends on it. If the textile industry in this country does not progress, the dyestuff industry in this country will not progress either to a very great extent.

In the contemplation of this idea we know very well that laboratories in textile mills, in textile schools, in dyestuff selling houses, and manufacturing plants and professional laboratories will all continue to function. They will all have their sphere, just as they have it now; but we believe there is plenty of room, in addition, for a central bureau that could be created and maintained by this Association, because such a bureau could handle work that none of the other laboratories could, for obvious reasons, handle.

The Breach Between Mill and Consumer

If we will consider the matter for just a moment we will see that the textile manufacturer as a rule (there are exceptions, of course) and the dye manufacturer are both in a very peculiar position as to their relation to and with the ultimate consumer of their products. The textile manufacturer usually doesn't have much direct contact with the consumer of his products. His identity is lost before his produce reaches the lady who buys a piece of material over the counter, or a ready-made garment. The dyestuff manufacturer is in a worse fix, because he is just one step further removed. Both of us have little or no control of our products as they reach the ultimate consumer.

If you will consider further some of the surveys recently conducted by Good Housekeeping, and other similar publications, you will find among other things that a majority of women, in reply to questions that have been asked them, prefer fast colors if they can get them, or they want fast colors. The majority of them don't really know very much about the meaning of fastness. They have a very hazy conception of the different kinds of fastness that there might be. Salespeople in stores as a rule have very vague ideas as to fastness. Most women, and laundries, use reasonable care in laundering—not all of them, of course, but most of them do.

How can the textile manufacturer and the dye manufacturer satisfy some of these expressed wishes of the purchasing agents of the world, your wife and mine?

There have been efforts made by various bodies and associations who are much further down the line and much nearer to the consumer than the textile manufacturer to draw up some tentative standards of fastness that might be applied, but in my opinion that is a little bit too far down the line. It seems to me that this is particularly and peculiarly a problem of the textile manufacturer and the dyestuff manufacturer and that their interests lie very much parallel.

That, I think, is about as brief a general summation as I can make as to what some of the considerations were that we would like to meet by the setting up of this Technical Bureau of the association.

I might say that I spoke on this same subject to the Boston Section a couple of weeks ago, hoping to get, as I hope to get to-night, someone to disagree with the idea, because that is the only way that we will find out its weaknesses. It is the only way we will find out if it is worthwhile following through, or

whether it should be abandoned. The program at that meeting seemed to be made almost to order in that there were two gentlemen who preceded me on the program who just seemed to lead up to my subject. One of the gentlemen represented the Boston Better Business Bureau and the other was the chief adjuster at Filene's. The Better Business Bureau man had a great deal to say about truth in advertising. Several rather amusing incidents took place at that meeting.

The adjuster from Filene's spoke of several things, among which were damages they had in cotton shirts, in that they got little holes through them, and he asked if there was anyone at the meeting who could tell him what caused that damage. There were several suggestions offered. Finally he said they had employed an expert from outside of Boston to investigate the thing for them. This man had made a very careful investigation and had made quite a discovery. He found that in the excretion from the human body there are little bugs, and that these little bugs got on these cotton shirts and ate holes in them. (Laughter.)

I sat there listening to him. When he got through, I came to, and I turned to him and said, "Mr. Davy, do you have similar complaints on B.V.D.'s?"

"No," he said, "I don't remember ever having a complaint like that."

I said, "Do the people around Boston all wear their shirts next to their skin?"

That sort of crimped his idea, and so they have to investigate that all over again. (Laughter.)

The Proposed Technical Bureau—Its Character

As to this Technical Bureau, I shall try to be as brief as possible in outlining a few of the things that we think should be included in its make-up. In the first place, the personnel of such a bureau would have to be of the very highest type. That must be fully realized if the Bureau is to command the respect that it should, and if it doesn't command the greatest respect we shouldn't have it. It should have a very high-grade director, the highest and best qualified we can get. It should have assistants as they are warranted, and it should be under the supervision and regulation of the Research Committee of the Association.

As to equipment, the plan would be that the laboratory in connection with this Association should be very complete in its equipment. It should have everything in the way of experimental equipment and apparatus. We believe that such a bureau, sponsored by this Association, would have a very good chance of getting a great deal of this equipment at very much reduced prices. We could, you must realize, offer quite an inducement to manufacturers of equipment and apparatus, in that the installations could constitute for them a permanent exhibit of their apparatus and equipment in a place where they could take people to demonstrate them.

Although we have in and about New York good libraries available, it would probably be advisable in time to build up a library in connection with the Bureau. We would also expect such a Bureau to develop and to employ any apparatus that we may need for some of our standard tests, and I might say that there are several pieces that have been shown at various times in the Reporter of apparatuses that have been worked out by members, and either those pieces themselves or some modification of them may easily become standard in size.

I didn't mention that the location of such a Bureau would undoubtedly have to be in New York, at least to start, because New York is the center of that sort of activity and besides the center of textile selling.

The activities of this Bureau would fall into two main divisions: revenue producing and non-revenue producing. Among the revenue producing activities would be general testing work for the public, for mills, for other associations, for professional laboratories, for department stores or for magazines, and there is quite a good deal of that kind of work and probably there will be more, particularly if the idea is developed, as I personally think it should be, whereby the textile manufacturer can get nearer to the ultimate consumer of his products, so that he can grade those products into two, three, or four grand divisions, as to their fastness, and the ultimate purchaser over the counter will have some idea of what the material is that she is buying.

The Bureau's Activities Outlined

Among the revenue-producing activities could be the certification of standards. That is to say, after the Association has set up these regular standards that we hope to see adopted all over the country, if some converters' association wished to pass a certain part of their output through our Technical Bureau and have our stamp of approval as to some certain fastness placed thereon it could easily be done, and it would carry considerable prestige with it as coming from this Association.

The use of the special facilities in the laboratory could be available, at a nominal charge, to other associations, professional or otherwise, or to members.

Assistance could be rendered in patent or general legal cases.

Special investigations might be conducted. There could be a textile library service which would include a digest of special articles that anyone might want. There could be facilities for inventors to complete their work or to demonstrate it, if you please. There could be considerable referee or umpire work, and perhaps this bureau could also get out a very much enlarged year book which might combine the good features of three or four year books that are now on the market, including our own.

Then there would be non-revenue producing activities, such as the dissemination of correct information regarding textiles and colors and fastness, digesting of the world's literature on textiles, different mill practices, for the benefit of members and for publication in our official organ, and there could be, further, considerable interchange of information with similar foreign bureaus, of which there are a great many.

That is a very sketchy outline, it is true, but I think it gives you the main points.

As to the financial requirements to put this scheme over, they would be big, but if the thing were done right I think we would have something to sell. If we had a half-million or a million dollars, the thing would practically run itself without revenue-producing activities. However, the revenue-producing activities, we believe, after several years would go a long way toward supporting the Bureau. Nevertheless, we should make this large effort, if we are going to put the idea across, to raise a very substantial sum of money, in my personal opinion, not less than a half-million dollars.

There is at the present moment quite a considerable sum of money, resulting from the operations of the Textile Alliance, which is going to be used for research work of one kind or another. Some of that will probably go to various textile schools, and some perhaps will go to other schools. I have put in a request for a consideration for our Association.

I was going to say something as to a possible conflict of such a Bureau with professional laboratories. After looking over the program, I rather suspect that that may be brought up later and developed by another speaker. We do believe, however, that if we could set up such a Bureau as I have tried to describe to you briefly, we would have a very real piece of work to carry on for our Association, and we believe that we could probably make our Association felt in a constructive way through such an activity, more so than through any other activity that we have yet attempted.

The reason the title of what I had to say should have been "A Proposed Plan" is because up to the present that is all that this is: a proposal. I am talking about it to the various sections as I go about, and it is our very earnest desire, naturally, that we may get comments from our members. Whether they are favorable or otherwise makes no difference because, naturally, we don't want to back the wrong horse. It isn't going to be any fun going out and trying to raise a lot of money, and if we are going to try to raise it we must have something big in back of us or we had better not try to raise the money at all.

Thank you. (Applause.)

Chairman Hayes—Before we proceed with any discussion, I want to say that there are quite a few people here to-night who are not members and I want to tell them that a big part of all of our meetings is the discussion which follows the speakers' talks. We want you all to feel free to ask questions or to make comments. We would like it even better if you would disagree with the speakers. The Chairman doesn't have to answer, you see. (Laughter.) The fact that you are not members has nothing to do with it. We would be very glad to hear comments from any and all of those present in the room.

Are there any questions or comments upon Dr. Killheffer's speech?

Discussion on the Proposed Bureau

P. J. Wood—Mr. Chairman, I am reminded of a visit that the Governor of New York made to Sing Sing some time ago. He started out by addressing the convicts in the chapel and he commenced by saying, "Fellow citizens——." Immediately he realized that they were all disfranchised, and that that wasn't the right thing to call them. He started off again, "Fellow convicts——." He remembered that he wasn't a convict. Finally he said, "Well, anyway, I'm glad to see so many of you here." (Laughter.)

That is the way I feel, as a stockholder in this hotel. I'm glad to see so many of you here. (Laughter.)

I was very much interested in Dr. Killheffer's talk. I think he has presented to us a very splendid vision of what the Association can do for the entire textile industry. There isn't very much I can add to what he has said, except that I should like to discuss for a moment the point regarding possible conflict with private laboratories, which, of course, must occur to many people. It would seem to me that this laboratory would stand a little apart from all private laboratories in one respect, and that is that it would not be, strictly speaking, a private enterprise. I would call it rather a public institution, and as such it would be able to function as an arbitrator in case of dispute very much better than the experts selected by two parties to any controversy.

We might imagine, for instance, a dispute between a dyestuff manufacturer and a dyer, or other textile colorist, which doesn't occur very often, I understand; but

it is conceivable that it might happen, and in that case an impartial arbitrator of this sort would be of undoubted advantage to both parties.

There are a great many other activities which could be indulged in, more particularly in those non-revenue-producing departments which Dr. Killheffer has referred to, in the realm of pure research, which it is impossible for us to undertake at this time on account of lack of funds, and with the added attraction of some practical use which could be made of the institute by the public, and particularly by subscribers to such a fund as has been suggested, it would then be possible to carry on this pure research from the revenue thus derived.

I think this is a matter that every member should take thoroughly to heart, and, being the chairman of that Finance Committee which has been mentioned, I hope you will all do your little bit to help the project go forward. (Applause.)

Chairman Hayes—Are there any other comments?

Dr. Ludwig K. Biach—Dr. Killheffer called attention in his address to the importance of the textile industry co-operating and working with other branches of the chemical industry, and I want to say that the color factories are for a laboratory of the kind that he proposes. I would suggest, however, that the textile industry be approached in a very definite way, showing them the advantages of this laboratory for the textile industry, which is the next step toward the consumer. The textile industry, as you all know, is divided into two branches, and each one of them should be made aware of the benefits of a laboratory of this kind. (Applause.)

Mr. Dougan—Dr. Killheffer, you mentioned that the dyestuff manufacturer and the textile manufacturer are in exactly the same boat. Don't you feel that 95 per cent of the products that are manufactured now are just a repetition of what has gone before? Had the textile manufacturer availed himself of those products and the knowledge of those products, he would have been much better off, and he would have known more about those dyestuffs before the present hue and cry about fastness.

I feel that this laboratory is an excellent idea, in that it educates the textile manufacturer to avail himself of these products and educates him in their uses, etc.

President Killheffer—There is no question that most, if not all, of the fast dyes that are now available have been available for a long time and they could have been used long ago by textile manufacturers.

Then take the next step to the textile manufacturer, and most of them will tell you that they are willing to put in faster colors, to make better finished fabrics, and what not, providing they can get the price to warrant their doing so.

Then skip the next strata and go to the consumer, and nine out of ten will tell you that they would gladly pay the slight advance necessary to get something faster, if they knew they would get what they paid for.

Somewhere in between those two steps the thread is lost, usually because of price competition, and a consequent sacrifice of quality. I feel very strongly that such an institute or laboratory can go a long way toward bringing closer together the actual producer of the fabric and of the products used in finishing the fabric, and the man or the woman who uses it finally, so that the one can pay the slight advance, which he would gladly pay, but, for that extra price, will get what he actually wants to buy.

That, I think, most textile manufacturers will agree is a pretty true description, although there are textile manufacturers in the room who can speak out of their own knowledge, whereas I speak second-handed, of course.

Chairman Hayes—Is there any further discussion on that point?

I should like to indorse what Dr. Killheffer has said. When we come a little further down in the program, it may be brought out that some of the retail stores in the past haven't requested these fast fabrics. I feel that it is a question of education, and that is one thing that this laboratory would do: it would make available the information that fast dyes, fast-dyed goods, can be secured.

President Killheffer—There is one point that perhaps I didn't make quite clear.

The primary idea, of course, would not be that such a laboratory or institute would make a campaign for the adoption of fast-colored fabrics, to the exclusion of all others, because we all realize that there are places—and there probably always will be—for the use of the less fast dyes and for the use of the less carefully made fabrics. What such a laboratory or institute would do would be to classify those where they really belong so that the ultimate purchaser could exercise a choice and buy the good ones for the bigger price and the poor ones for the smaller price.

Chairman Hayes—The New York Section is not only responsible for the chief officer of the National Association but also for one of the Vice-Presidents. I should like to hear from Dr. Harold. (Applause.)

Dr. Harold on the Bureau

Dr. Joseph F. X. Harold—I am extremely interested in Dr. Killheffer's plan and in the vision and progressiveness that it indicates, and I should like to see the Association take a step forward toward its realization day by day.

The thing that makes me feel optimistic about its being realized is that we have to admit, humbly enough, that other countries have already succeeded in establishing just this type of laboratory. It is an old matter in Eng-

land. There are a number of such laboratories serving the textile community in Germany with more or less success, all of them supported either by the town itself, by the local government or the chambers of commerce, and all doing wonderful work in stimulating the textile industry by constant research, the development of new processes, the perfection of old ones, the perfection of dyes and of fabrics. So it is by no means an illusory dream to hope that in America we shall at least have one such laboratory when Europe has so many and England, with its Textile Institute, has such a remarkably good one.

In the matter of the competition with private laboratories, I might cite an instance in New York practice to show that the menace is not an imminent one, and that there is a spirit of compromise arrived at, so that a laboratory of this type is especially useful without unfavorable competition from private laboratories.

The Laboratory of the Sugar Association

There is a laboratory in the Sugar Association. That laboratory was founded some few years ago and it met with no opposition from the beginning. Nor has it earned any opposition in the course of its work.

The plan there is for the buyer of sugar to have his laboratory, which is naturally partisan, and for the seller of sugar to employ another private laboratory; and when the two have submitted their figures, a third sample of the sugar under question is sent to the New York Sugar Laboratory, which acts as the arbiter. The Sugar Laboratory works only for the members of the New York Sugar Association. The third figure is then compared with the results of the other two laboratories, which are regarded as partisan laboratories, and it acts as a referee. Nor is it the last word in the matter. It simply gives the third vote. There is luck in odd numbers, and there is a definiteness in two votes out of three. The two nearest figures are taken (not necessarily the referee laboratory's), the third figure is compared with the other two, and those two which agree most are taken as the standard.

There has been no friction. No private laboratory has objected to the Sugar Trade Laboratory as menacing its progress. In fact, it has stimulated the work rather than anything else and has increased the amount of work in the private laboratories.

In regard to the larger aspects of the laboratory, where it serves as a referee, I think as textile men we will all be glad to see that whatever money is put into this laboratory is kept, in the case of referee work, more or less in the textile family. A great deal of litigation now goes along in such a way as to throw the greater amount of the money which is spent in determining an issue not in arriving at facts but in trying to tell the lawyer on one side the best way of putting a highly technical question, then trying to tell the lawyer on the other side the best way of putting his view on it, and then trying to make a judge on the bench, who has just come off a license case or a case involving an automobile patent, understand what pH control means. A great deal of the money now spent in litigation goes into the pockets of lawyers who only half understand the problem at issue and a judge who may or may not (I hope this won't be considered contempt of court) understand the issue at all.

If disputed questions are settled or helped to be settled by means of this referee laboratory, you can appreciate what a large amount of money will be kept in the textile family instead of being spent on lawyers whom not all of us love—at least those of us who have been involved in much litigation.

So I think that is really one of the pleasantest aspects of the laboratory. On the other side, in Germany, it is quite common, in a disputed case, not to use the courtroom at all, but to appoint a number of referees who are familiar with the special technic, and rely on their decision. I must say that Paterson has been very progressive in that respect. On a number of occasions it has appointed referees on silk questions, and has come to agreements in that way.

So that we are following a very wise precedent when we bring to the textile profession a laboratory which can serve as a reference in many disputed points that come up, especially when there has been a price drop and cancellation is the order of the day. (Applause.)

Chairman Hayes—Are there any other comments or questions?

The point Dr. Killheffer brought up about the holes in shirts was rather interesting. In that connection I might offer a suggestion which he can pass on to the Boston Section. I can't speak authoritatively about shirts, but, having two young children, I know that holes are often caused in other garments by safety pins.

If there are no other questions we will pass on.

It was my pleasure some two years ago to hear Dr. Scott at the Chemists' Club. That night before he made his speech he suffered the embarrassment of having his suitcase swapped with another one, so that he lost the speech that he was going to share with those in attendance. The suitcase which was swapped for his contained a bottle of champagne. When he made the announcement I thought he would certainly share the champagne with the people in attendance. He didn't though, and I have always held that against him. He did, however, give us a very good speech, and whenever we have Dr. Scott with us that is what we expect.

I am pleased to introduce Dr. Walter M. Scott, of the National Aniline & Chemical Company, who will speak on "The Fastness of Colors as Related to Silk." (Applause.)

The Fastness of Colors as Related to Silk

By Dr. Walter M. Scott

I think that all of you have already been brought to a realization of the importance in our minds, as well as in the minds of the trades with which we are associated, of the question of fastness of colored textiles. Our Association has emphasized this subject from the very start of our organization. We have always endeavored to keep this matter of fastness before us in the meetings of our Association and in the work of our Research Committee, and I think that it is safe to say that we have already accomplished a good deal. You have heard from our President something of the work which we have done along the line of clarifying the situation with regard to fastness.

Just recently we have featured the subject publicly even more than before. You will probably recollect two very excellent papers that were presented to us at our last annual meeting in New York; one by Lloyd E. Jackson, giving us the position of the dry-cleaners, and the other by George H. Johnson presenting the matter from the standpoint of the power laundries.

Your president has referred to the recent meeting in New England, at which they had representatives from the merchandising business to address them. I thought that the subjects of those two talks were so appropos to our discussion that it might be worthwhile repeating them here. The first gentleman, I believe, talked on the subject, "As the Public Sees It," and the next man spoke on the subject, "As the Public Demands It." I think you will agree that we all want to satisfy the demands of the public, because it is only on this basis that our industry can hope to prosper. Moreover, it has not been my experience that the public is unreasonable in this matter, when their demands are properly interpreted.

It seems to me that our Association should be the one to put forward the idea of educating the public to the understanding of just what can be expected in this question of fastness.

When we speak about fastness we are always somewhat at a loss for the simple reason that there are probably as many conceptions about fastness as there are individuals. Our Association has endeavored to crystallize the idea of fastness so that there might be some common language in this connection which could be talked between the various parties that are interested, namely, the manufacturers of dyestuffs, the textile manufacturers, the dyers and textile chemists, the wholesalers, including the cutting-up trade, the retailers, and the ultimate consumers—the so-called "general public."

At the risk of some repetition, I should like to amplify the remarks of our president on what our Association has already accomplished. I am going to speak of the matter chiefly from the standpoint of silk, because that is the material with which I am most familiar. I am particularly concerned with the work of the Association along this line, having been chairman of the Sub-Committee on Silk of the Research Committee ever since its formation.

I am very glad to say that in spite of the fact that there are organizations in other countries working along similar lines, as far as I know our Association was the first to put out standard washing tests—to be sure, at that time they were in a tentative form—and to suggest classifications for fastness to washing on silk. In our Year Book published in July, 1923, we first suggested these standard tests. They have been revised in our succeeding Year Books and appear in their latest form in the Year Book of 1927, which was published last fall.

In 1925 the British Silk Research Association published their laboratory report, No. 21, which consisted of quite a lengthy treatise on the fastness of dyed silk to many different agencies. In that they suggested standard tests for fastness to washing and also standard types of dyestuffs to represent each class of fastness.

The German Fastness Commission, of course, has been in existence for some time. Even before our Association was formed, they put out standard tests for fastness on cotton and wool, but at that time they did not touch the subject of silk. However, in March, 1926, they published a revised edition of their fastness tests and standards, and in this they included tests for washing on weighted and unweighted silk.

For the sake of comparison, let me review briefly the tests for washing which were proposed by the various associations. The British Silk Research Association recommended two washing tests: a domestic washing test which consisted of immersion for one hour at 40° C. or 104° F. in a half per cent soap solution, and a severe washing test which consisted of immersion for one hour at 80° C. or 176° F in a half per cent soap solution. These immersions were followed by four or five rinsings in cold water, with squeezing in between, then extacting and drying.

The German Fastness Commission recommended only one washing test which consisted of immersion for a quarter of an hour at 40° C or 140° F in a half

per cent soap solution. This immersion in the soap was followed by 10 squeezes in the soap solution, and then rinsing in cold water, extracting, and drying.

Recommended Fastness Tests Compared

Our own Association recommended four tests. Test Number 1 was an immersion for 10 minutes at a boil in a half per cent soap solution; Test Number 2, an immersion for 10 minutes in 70° C. or 160° F. in a half per cent soap solution; Test Number 3, a 10-minute immersion at 50° C. or 120° F. in a half per cent soap solution; Test Number 4, a 10-minute immersion at 30° C. or 85° F. in a half per cent soap solution. In each test this immersion in soap was followed by rinsing in cold water, extracting, and drying.

On the basis of the two tests which the British Silk Research Association recommended, they established four classifications of fastness to washing of silks. Class 1 showed little or no loss of color at 80° C. For this classification they recommended as a standard a 4 per cent dyeing of Coerulein SL powder dyed on chrome mordanted silk. Their Class Number 2 had little or no loss of color at 40° C. (that is their mild test) and their standard for this classification was a 4 per cent dyeing of Alizarine Blue S on chrome mordanted silk. Class Number 3 they defined as having some loss of color at 40° C., for which they suggested as a standard a 1 per cent dyeing of Methyl Violet 2B. Their Class Number 4 showed much loss of color at 40° C., and the standard for this class was a 2 per cent dyeing of Orange II.

The German Fastness Commission, on the basis of their one washing test, established five classifications but apparently only defined three of these five. For unweighted silk, their Class Number 1—which in their system is the most fugitive class—was distinguished by considerable alteration in the dyed shade in their washing test and they recommended a 4% dyeing of Crystal Ponsol 6R as a standard. Then they skipped to Class Number 3, where the dyed shade was altered only very slightly in this test, and the standard for this class was given as 2% dyeing of Janus Yellow R. For their Class Number 5, where the dyed shade was unaltered in the washing test, they recommended a 25% dyeing of Alizarine SX (20% paste) dyed on alum mordanted silk for the standard. For weighted silk they also have these five classifications, only defining three of them. Their Class 1 and Class 3 have the same definition and the same standard as for unweighted silk. Their Class 5 has the same definition, i. e., no alteration in shade in the test—but they gave as a standard a 1% dyeing of Victoria Blue B, after-treated with tannin and tartar emetic.

Our Association established five classifications. Our Class 1 showed no appreciable alteration in color after our Test Number 1, which is the boiling test, and we recommended a 5% dyeing of Indigo MLB 4B powder as a standard.

Our Class Number 2 showed no appreciable alteration after Test Number 2, but noticeable alteration after Test Number 1, and we recommended a 10% dyeing of Zambezi Black V, developed with meta-toluylene diamine as a standard.

In our Class Number 3 there was no appreciable alteration after our Test Number 3, but noticeable alteration after Test Number 2, and for this we recommended a 2% dyeing of Formyl Violet S4B as a standard.

Class Number 4—No appreciable alteration after Test Number 4 but noticeable alteration after Test Number 3, and for this we recommended a 2% dyeing of Patent Blue A as the standard.

Class Number 5—Noticeable alteration after Test Number 4, with a 2% dyeing of Patent Blue V as the standard for this classification.

You will notice that there are a number of differences in the recommendations as to testing made by the various associations.

Our Association, having proposed certain tests, next proceeded to find out whether the tests were workable in actual practice. Through the co-operation of the Bureau of Standards, and particularly Mr. Appel, who is a member of our Research Committee, we were able to distribute to a number of laboratories dyeings on silk representing all classes of fastness to washing. We gave these laboratories our standard

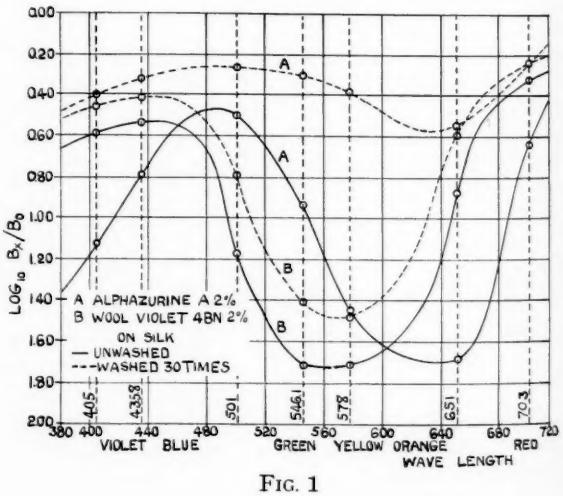

Fig. 1

wash tests and asked them to classify the dyeings on the basis of these tests, then send us their results together with any remarks they might care to make. These laboratories were very well distributed, I think. They represented the Good Housekeeping Institute, the Laundryowners' National Association, Arthur D. Little, U. S. Testing Company, Arnold Print Works, Joseph Bancroft & Sons, the Arlington Mills, Newport Chemical Works, National Aniline & Chemical Company, and E. I. du Pont de Nemours.

The following table is a summary of the reports which were returned to us. The dyeings are listed in the order of their fastness from Class 1 to Class 5, respectfully:

Standard Dyeing	Number of Laboratories Assigning to Class				
	1	2	3	4	5
5% Ciba Blue 2B Pdr.....	8	2	..	..	..
10% Diazine Black V (M.T.D.)	3	2	..	4	1
2% Wool Violet 4BN.....	1	..	7	2	..
2% Patent Blue A.....	..	..	1	9	..
2% Orange II	..	..	..	..	10

At first sight, these results seemed to be somewhat discouraging, but when we looked them over more carefully, and particularly when we compared the actual washing tests, which were all returned to us, we found that the tests themselves showed very close agreement all the way through. The chief difficulty was that the men who judged these tests varied considerably in their interpretation of the definitions for each classification. Even at that, with the exception of the standard for Class Number 2, there was very good agreement in the actual classification.

We have since realized that the Zambezi Black V type of color is not a particularly good standard for Class Number 2 because it is not sufficiently distinctive. It shows a little change in shade even in the lowest test, as low as 85° F., and it doesn't show very much more loss even at a boil. For that reason it is rather hard to classify.

We are now endeavoring to find a better standard for Class Number 2, and that is one question on which we would like to have some help from the members of the Association. We desire as a standard for Class Number 2 a color which will show practically no alteration in shade after 10 minutes' immersion at 160° F., but which will show a noticeable change at the boil.

For further clarification of this matter, we feel that we need a better method of interpretation of the actual tests which have been made. Therefore the line of research that we are processing along now, is in the utilization of some of the methods which have been developed for color measurement to assist us in definitely establishing this classification.

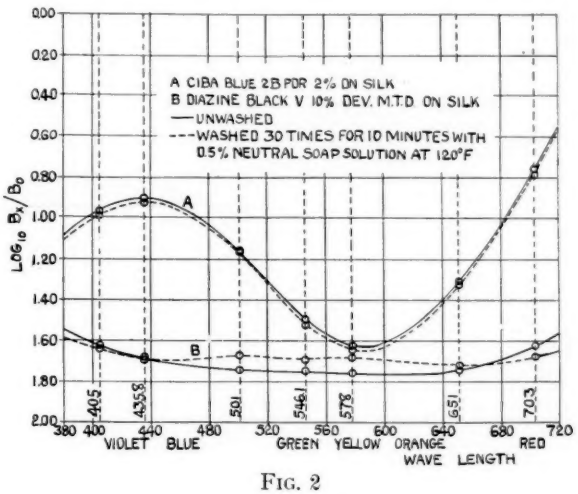

FIG. 2

You are probably familiar with the paper which Mr. Appel presented at our annual meeting on the system of color measurement which he is developing at the Bureau of Standards. He has applied this system to recording the change in shade produced by washing and through his courtesy I am able to exhibit several spectral reflection curves which he made (Figs. 1 and 2). Fig. 1 shows the spectral reflection of curves of 2% dyeings on silk of Wool Violet 4BN and Alphazurine A, compared with the same dyeings after they have received thirty washings of 10 minutes each at 120° F. An examination of these curves brings out the fact that Wool Violet 4BN, which is representative of Class III, shows much less change after washing than Alphazurine A, representing the next lower classification.

The difference in washing between Wool Violet 4BN and Alphazurine A is easily distinguished with the naked eye so that the curves only serve to emphasize the difference. However, in the case of Ciba Blue 2B and Diazine Black V, the spectral reflection curves portray differences in behavior which are hardly perceptible to the naked eye. In Fig. 2 the curves of the washed and unwashed samples of Ciba Blue 2B are practically identical, whereas in the case of Diazine Black V there is a noticeable alteration in the curve after washing.

Research work along these lines is being continued and we hope eventually to define our five classes of fastness on the basis of actual measurements of color values before and after washing. Having established

five standards which shall be representative of each of the five classes, we will test an unknown sample in comparison with these standards and assign it to the particular class where it does not alter in shade any more than the standard of this class.

When we come to the application of this work in the silk industry, it is necessary to keep in mind the ultimate goal toward which we are working. We are trying to get an absolute way of establishing degrees of fastness so that we can preach the gospel of defining fastness, rather than talking of the term in a vague and loose manner.

The idea of making four tests may sound rather complicated at the start, but as a matter of fact in actual practice it is not necessary to make the four tests. We find in routine work that the Test Number 2, which is the 10-minute immersion at 160° F., will distinguish very readily between the three lowest groups, that is, 3, 4 and 5. It is easily demonstrated that 5 loses almost all its color in that test, 4 not quite so much, and 3 less still. So that for common routine work it is not absolutely necessary to make all the four tests.

We believe that it is necessary to have these five classes of fastness when it comes to establishing the fastness of dyestuffs on silk, because it is possible to distinguish clearly five degrees of fastness in the available list of dyestuffs for silk. But when it comes to the fastness of dyed silks—by that I mean combination shades produced with one or more dyestuffs—I don't believe it is necessary to utilize all of these five classes. In order to make that point a little more clear, I want to say just a word on the various methods of washing which are now in common practice in the trade.

We find, according to George H. Johnson, who spoke at our annual meeting, that the power laundries separate their colored materials into a number of different classifications, of which the silk industry is interested in the following: (1) striped shirts with white areas, (2) colored silk and rayon pieces, and (3) hosiery. For the striped shirts with white areas, they recommend a temperature up to 140° F., not above that. You can see by reference to the standards of our Association that any dyestuffs which would fall into our Classes 1 and 2 would be satisfactory for this purpose. When they come to colored silk and rayon pieces they recommend washing either cold or up to 100° F., not above 100. In this case our Classes 1, 2 and 3 of fastness would be satisfactory. For hosiery, they also recommend cold to 100° F. In this case I think we could say on the basis of experience that our first four classes of fastness would give satisfaction.

In the matter of home washing, of course there is probably quite a little divergence in method. However, there has been a lot of advertising and other propaganda put forward to the general public recently to educate them in the matter of home washing, and I think that it is safe to say that a good deal of the home washing is done perhaps according to the directions that we find on the packages of Lux, Ivory Flakes and other neutral soap chips. A similar recommendation for home washing is put out by the Silk Association of America. They recommend washing in temperatures not above 100° F. For washing of that sort, carried out under careful conditions, I believe that the first four classifications of our Association would be satisfactory.

So you see that with the exception of this classification of striped shirtings, which is distinctive and can be especially provided for, the fastness requirements of the average person representing the general public do not need to be so high.

The Washing Committee of the American Association of Textile Chemists and Colorists have advocated all along, in connection with silk, this same precaution in regard to washing, i. e., that a temperature of 100° F. was sufficient. When we first put out our tests there was some criticism directed at us to the effect that we were recommending washing silks at a boil. That was farthest from our thoughts. But it was necessary for us to establish some laboratory method by which we could determine these classes of fastness and then interpret them in the terms of common washing practice.

For instance, we find that our 160 degree laboratory test would be comparable to approximately fifteen washings at 100° F., and our 120 degree test would be approximately comparable to five washings at the 100 degree temperature.

I have taken quite a little time to discuss this subject of fastness to washing, but I should like to devote just a few minutes now to the question of light fastness. Your President has spoken of this work also, but I might call your attention to the reports which we have already published. The first one was in the December, 1926, issue of our Proceedings, and the next one in the November, 1927, issue of our Proceedings. These reports give a pretty complete account of the work which we were doing, although they are by no means inclusive of our more recent work which will be described in subsequent papers.

You are probably aware of the fact that during last summer and the summer preceding we exposed, at the Bureau of Standards, upwards of 1,000 dyeings, representing 300 to 400 different types of dyestuffs. These dyeings were exposed under all different methods of

exposure that we could conceive of. Silk has been very well represented in those dyeings.

Of pure silk, we included 120 dyeings of acid dyestuffs representing 56 dye types, 42 dyeings of basic dyestuffs representing 21 dye types, 123 dyeings of direct and developed dyes representing 68 dye types, and 14 dyeings of vat dyes representing 40 dye types, making a total of 349 dyeings on silk representing 185 types of dyestuffs.

Last summer we added a number of dyeings of the common direct and neutral dyeing acid dyestuffs on tin-weighted silk, in order to get some information in that respect.

Our aim has been to work toward determining a standard method of test, and then to establish classes of fastness based upon this definite test which we would propose.

Complaints with regard to light fading of colored silks have not been nearly as common as complaints regarding their loss of color in washing. I think perhaps one reason for that is that there is a clearer line of division in fabrics which are really intended for exposure to light; that is, materials for draperies and curtains, and upholstery materials are dyed especially for the purpose and sold as such. Therefore, there is perhaps a more direct line of contact between the manufacturer and the public in that respect.

Before I close the subject of light fastness I should like to issue a warning against what we might term the abuse of artificial light testing, of which the Fadeometer is a representative instrument. The Fadeometer is without doubt an excellent artificial device to approximate the action of sunlight, but I think that perhaps the tendency, growing out of the large increase in the use of Fadeometers, is to create an artificial demand for a fastness which is not perhaps actually essential. We must remember that the Fadeometer provides a continuous exposure to a very concentrated form of light and that a short exposure in the Fadometer might represent rather long wear under common conditions for use. I think that material that is intended for draperies should be reasonably expected to stand 50 hours' exposure in the Fadeometer, but when we come to a material which is to be used for dress goods I think we must establish a very low limit.

I had an illustration of this point in my own experience which I should like to bring to your attention. A customer came to me at one time very much exercised because certain prints on silk designed for neckwear had been exposed in the Fadeometer and had showed noticeable fading in a very short period of exposure. These prints were discharge styles, and you doubtless know that the color discharge has to be produced with the basic colors, which are quite fugitive toward light. As a result, when these prints were exposed in the Fadeometer for five hours they showed quite a noticeable change and the customer was worried. I knew that prints of this type had been for a long time used for neckwear and worn without any great number of complaints, but I decided to investigate the matter, to see if we could satisfy all parties. So I took a dozen of these prints and gave them to men of my acquaintance. We all wore one of these neckties for thirty days, during July and August, and then they were returned for observation. We found that in every case, in actual usage (and they were worn in quite a number of different communities and in different ways), the ties had not depreciated to any objectionable extent. So we found in that case that the Fadeometer test was not a true criterion of the actual conditions to which the material was to be subjected.

In conclusion, I should like to emphasize the fact that our Association should take the lead in promoting a better understanding between the dyer, the merchandiser (i. e., the retailer), and the general public. It is our function to bring these elements together, and as your President has said, perhaps to form the connecting link between them. We should give publicity at all times to the limitations in fastness of the dyestuffs, themselves, which the dyers have to use in a good many cases.

For instance, the public demands on silks, at times, exceptionally bright colors. We know that in some instances these colors are only capable of being produced with the basic colors, which are the brightest types known in the dyestuff field, and that these basic dyes do not possess very great fastness toward light. In those cases I think that there should be a definite understanding of that fact all the way through in connection with the merchandising of the material.

Another thing that enters into play is the fact that the public demands quality of goods; that is, evenness of color and maximum luster of the silk. In order to produce the best results, the dyer has to use dyestuffs which are level dyeing and with which he can get his shade fairly quickly so as to avoid overboiling the silk. Unfortunately, it is a fact that the most level dyeing dyestuffs have very poor fastness toward washing.

I think that most of the dissatisfaction would be eliminated if all the parties concerned understood just what they were getting. I also think that our Association, with its standard tests and fastness classifications, can furnish the foundation upon which this understanding may be built, if we can get all the various parties to utilize these tests. We hope in the near future to have authentic dyeings of our standards which can be used for comparison

in case of dispute. That could well be handled by our Association, possibly in connection with this Technical Bureau which your President has spoken of.

Finally, I might say that our Association should always welcome the establishment of laboratories among the progressive retailers. I, for one, am certainly very glad to see that a representative of one of these laboratories is on our program to-night, because I think that a frank discussion of this matter pro and con is for the benefit of everybody concerned.

Thank you, gentlemen. (Applause.)

Chairman Hayes—Are there any questions you would like to ask or any comments you would like to make with regard to what Dr. Scott has said? I shall wait just a minute for any questions.

I want to say that I thoroughly approve of what Dr. Scott said in relation to the installation of a testing laboratory by one of the retail stores. I see it perhaps from a little different angle than Dr. Scott does. I see it from the angle that it makes for fair and even competition among the manufacturers. It is a little bit disconcerting, for example, to find that you are printing cotton goods with basic colors, using tannic acid, aftertreating with antimony, and washing, and that your competitors are printing with basic colors without any tannic acid, without aftertreating and without washing. It is not fair, from the standpoint of price. It is not fair from the standpoint of the effect produced by the rival manufacturers. With the installation of testing laboratories by the retail stores—or, for that matter, by all consumers—it will very soon be brought to light what different manufacturers are doing and it will put us all on an even basis.

We are very glad indeed to have with us to-night a representative from the R. H. Macy store. I take great pleasure in introducing Mr. E. Freedman. (Applause.)

. . . Mr. Freedman presented his prepared paper, entitled "Examining Textiles from the Retailer's Point of View":

Examining Textiles from the Retailer's Point of View

By E. Freedman

Bureau of Standards, R. H. Macy & Co.

It is indeed a pleasant privilege to address you this evening, and I am going to try to tell you in the time allotted me by your committee something about the examination of textiles from the retailer's point of view. I have chosen this special subject because of our desire to bring into closer harmony the views of the manufacturer with those of the discerning retailer.

All about us we see evidence of the rapid strides made by the manufacturing textile chemists and colorists, and it is indeed a remarkable one to behold, for without you we undoubtedly would still be wearing the old-fashioned homespun garments of the not so distant past.

The public, through the retailers, is constantly making great demands upon you, and you are being continuously taxed to satisfy its desires. With these increased demands come added responsibilities. Old problems are supplanted by new and more complex ones. The public, not aware of the difficulties that beset you, demands certain properties, or combinations of properties, difficult to supply. These demands are made upon the retailer, who of necessity bears the brunt.

R. H. Macy & Co.'s Bureau of Standards analyzes and compares offerings of manufacturers in order to obtain facts as to content and to determine best value. It conducts tests for the purpose of ascertaining performance and durability. It tests materials returned by customers for adjustment. It gathers and classifies all information received for the purpose of drawing up specifications for the standardization of merchandise.

Some of the problems confronting us concern many of you. Let me explain what I mean by a few concrete examples.

The public is often sold on the appearance of merchandise, but on numerous occasions regrets having made the purchase because of some hidden undesirable quality.

Weakness of Material

The slipping of warp threads in various materials, especially silk crepes, demands attention. Complaints are received from purchasers of piece goods and from purchasers of ready-to-wear garments. Oftentimes the garment is cut plenty large enough, yet the condition exists, the threads slipping under very slight pressure.

With garments cut tight across the shoulders, numerous cases appear where the filling threads do not hold. In other words, they have not sufficient strength to withstand the strain. This condition is noticeable among woolen broadcloths used in the manufacture of women's coats, also velveteens.

Some of the velvets give rapidly; due, I judge, either to the filling thread being injured or the type of weave used in the manufacture of the cloth.

This was the nearest I could get to the sample I wanted to show, although we have had some much worse. This has a tensile strength of about 22 pounds across the warp, and we have had some up around 16 pounds that we have been offered. When customers complain about that, we feel they are justified in their complaint and we adjust the complaint to their satisfaction. Yet we feel that we have been held up, in a way; that we are not responsible for that. The material has

been sold to us. The customer has purchased it, and we act as the distributor.

Weighted Material

Too often silks are too heavily weighted, with the result that they do not stand up well. It is not long before they crack and literally fall to pieces.

Here are some samples that were returned to us by customers. I believe that the sale of material of this type tends to chase the public away from silk, or silk garments, to the use of other textiles. That is a piece of weighted silk. Here is another. This particular piece of silk, based on the silk content, has 100% metallic weighting. We have had manufacturers tell us that this has, I will say, for example, 50% weighting, because they figured it as 50%, or they tried to tell us it was 50% of the finished product. They are correct, as far as that statement is concerned, but I believe you who know silks will disagree with that.

Dyes

The subject of dyes is a very important one. Under this heading we are called upon to consider: Fading; washing; dry-cleaning; bleeding; crocking; irritation and rashes; perspiration.

I have also brought some samples along to illustrate this. I shall take fading first. Dr. Scott has spoken of fading. It might interest you to know the attitude we take with regard to fading. We feel that material sold for a certain purpose should be fast to light in so far as that purpose is concerned. In other words, a bathing suit, we believe, should have a maximum resistance to light. We feel that a fur garment worn in the winter doesn't require that resistance. We take all of these things into consideration. We use a Fadeometer to determine fastness to light. We cannot rely on the sun because it is quite undependable. It doesn't come out when we want it.

Here is a sample of silk that has withstood 38 hours in the Fadeometer, and it is red. Plenty of samples of red do not stand up. This is a good one.

Here is one that after 36 hours has changed quite considerably. You may see these later, if you care to.

Fifteen hours has taken the gray practically out of this; turned it almost white. We often have to work with very small samples, sometimes samples taken from the hem of a garment. In the case of this particular sample, I believe you can all see, fifteen hours in the Fadeometer has almost completely destroyed the color.

Eight hours, corresponding to one and one-third days during June, July and August, or four days during March, April and May in this climate, has taken all the green out of this.

We have carried out numerous perspiration tests. Recently we were called upon to examine samples of office coats which we intend putting on sale this spring, and we carried out perspiration tests on the material. We found that in numerous instances the colors went pretty badly. In other cases, they held up very well. I have brought some samples with me.

The tests we use, by the way, are the tests of your Association. We started out by using acetic acid in our acid test, and ammonium carbonate in our alkaline test, and we didn't like the results that we obtained. Then it struck us that acetic acid was used as a fixative, a mordant for the dyes, and we couldn't quite conceive of it being the proper thing to use. Here is a piece of white. See what happened to it with an acid perspiration test.

As far as these perspiration tests are concerned, we feel that the perspiration of human beings varies, that even in the same human being it will change from time to time. But we also feel that progress can be made along this line. I shall discuss this later.

As far as irritation and crocking is concerned, we have had trouble with furs, people complaining of the crocking of dyes on furs and irritation, and these cases have taken up quite a lot of our time. People, of course, sometimes try to turn in a fur coat after prices have gone down, thinking they can make a better purchase, but we have found that in several instances they were justified in their complaints.

Washing

The washing tests we employ are, for silk, 100° F. for 15 minutes, using a neutral soap. We started off with 114 and we dropped down to 105. Then we thought that as far as the consumer was concerned 100 degrees would come nearer to it. If you start talking temperature to the public, you are talking an entirely different language than they understand, but if you tell the public that silks can be washed at the temperature of the body you have made some progress, and I think that would be worthwhile for your Association to understand; they cannot and will not use thermometers.

Here is a blue silk—this is an old test. The original color washed in neutral soap and in alkali soap, and you will notice the change that has taken place.

This is a washing test on a green; neutral soap and alkali soap.

This is some drapery material—and, by the way, we carried out tests for drapery material for fifty

hours. This particular material held up pretty well, but in washing the color went. On this particular piece it went considerably more.

I have seen silks of almost all shades washed in neutral soap solution at 160° F. for half an hour without noticing any material difference in tone or character of color.

Here, on the other hand, are samples washed in neutral soap at 100° F. for fifteen minutes.

Bleeding

Bleeding of fabrics causes great concern, especially if garments of different colors are washed together. Insufficient knowledge as to proper methods of washing, drying and ironing is often the cause, yet there are times when the color is taken up by white material in the same bath, thereby giving good cause for complaint.

Of course, there are times when we have garments returned that show unmistakable evidence of having been washed with other garments, and we very often take samples right out of the stock (and we don't worry very much about the price of the garment), and send it up to our laundry and have it given a commercial washing, bring it back, and invite the customer over to view the garment after it has been washed. Then if the customer feels that she is still entitled to a new garment we make an adjustment, but we tell her that we are doing it to satisfy her, and not because we are in the wrong.

Crocking

Here is a piece of silk that was returned by a customer. She started to make this up. And here is a piece of white cloth. If any of you will take a handkerchief and rub it on this material you will find that you will get the very same results that she got. We considered this sufficient cause for adjustment.

Crocking of colors, I suppose, is due in great measure to excess of dye or excess of finishing material which carries dye with it.

The crocking of colors in furs is almost invariably accompanied by complaints about irritations, rashes and infections.

I understand that no silks are guaranteed to withstand perspiration. We realize that the composition of perspiration varies greatly; that the health of the individual often has a great deal to do with the problem. Many samples of textiles examined withstand our laboratory tests for acid perspiration or alkali perspiration. We recommend those samples that withstand our tests.

Inaccurate Statements Concerning Materials

With reference to the content of materials, I am sorry to say that every now and then someone will offer us something which is not what it is represented to be. I was looking for some samples of silk to illustrate this point. I will say this: we feel reasonably certain that it isn't the manufacturer in this case who is at fault, but it is due to ignorance on the part of the man trying to sell it, intentional or otherwise, and we would rather believe that it is "otherwise." Someone has slipped up, somewhere along the line, in handing out the information, when a product is offered to us as all-silk, all-wool, or all-this, that or the other thing, and it is found not to be what it is sold for.

These are four samples that were submitted by one salesman as being 100% wool. This is the cotton we got out of these samples. The samples weren't much larger than what I am showing you, the samples of the all-wool fabrics. These are things we find ourselves up against very often.

We feel that for normal conditions, in the absence of other information, that is sufficient. We certainly would like to have further data along that line.

Here are several examples which may interest you.

Many other problems confront us, not alone in those lines in which you are primarily interested but in all of the lines of merchandise we carry.

Knowing that greater progress can be made by an open discussion, I welcome any questions pertaining to our work, methods of analysis or any other phase bearing upon this subject.

If you will permit me, though, before answering any questions I would like to offer a few suggestions which might prove of material benefit to all concerned.

Some of these suggestions that I shall make have, of course, been embodied in the report of your President, and in Dr. Scott's report far better than I could ever hope to give them to you. However, I shall give you our view:

1. In the first place, that extensive tests be carried out covering the various factors aforementioned, with the object of producing standards for materials coming under the necessity or utility class.

2. That definitions be formulated which would convey to the purchaser accurate information—e. g., fastness of color, washing, resistance to normal perspiration.

3. That materials be labeled to indicate their content.

. . . (Applause.)

Discussion of Textile Examination from the Retailer's View

Chairman Hayes—Mr. Freedman tells me that he has some pictures of the laboratory and some photomicrographs of some of the fabrics, etc. If anyone is interested in seeing them he will be glad to show them after the meeting is over.

It seems to me that there should be many questions and

comments upon Mr. Freedman's talk, here in Paterson. Are there any?

Mr. Seibert—I should like to ask Mr. Freedman if these tests for fastness of materials are made before they stock them; and, if so, how does he account for the fact that they get these complaints? How do these things get by them?

Mr. Freedman—Unfortunately, our Bureau of Standards has been operating as a Bureau of Standards only since August. Before then we had a laboratory, but we did not function in the manner in which we are trying to function at the present time.

The amount of material that we purchase is so large that we would have to have a very large personnel in order to examine all the material. R. H. Macy & Co., I believe, did something like $75,000,000 worth of business the year before last. I don't know the figures for last year. And we cover not alone textiles, but we attempt to cover many of the other commodities purchased by us. So it is a difficult thing to test every bit of fabric that comes into our concern. We are trying to do it as best we can, and we feel that with the earnest and sincere co-operation of the manufacturers, of the chemists and the colorists, the burden will be shifted in great measure to where it rightfully belongs. We, on our part, want to do all that we can toward bringing to the fore standardized merchandise, to sell merchandise that sails under truthful colors. When I say that I mean that the public is entitled to know what it is purchasing.

Mr. Seibert—Don't you believe, Mr. Freedman, that if you insisted on a certain degree of fastness from those from whom you purchase your materials, you would get it?

Mr. Freedman—We do insist, and we very often are told that the colors are fast. I will give you a concrete example:

A manufacturer's agent came to us one day and told one of our buyers that he was offering her some samples of cloth that were printed with vat dyes. We disagreed with him and finally obtained an admission from him that he allowed his men to deviate from that rule and to employ other dyes in that same fabric in order to obtain certain tones and shades.

We do not disapprove of the use of different dyes. We do say this: that if that product were sold to us as being fast to washing, or fast to light, we would buy it as such. If it were not sold as being fast to washing or fast to light, we would sell it as not being fast to washing or fast to light. But when it is sold to us as being all-vat colors and all the colors are not vat colors, we feel that we have been imposed upon.

Mr. Seibert—I must agree with you there, all right.

Chairman Hayes—I should like to ask Mr. Freedman if it would be their policy to continue buying from that man.

Mr. Freedman—I will answer you in this way: There was a certain concern that had been selling us merchandise for the past forty-odd years. Upon examination of their merchandise we found that it had fallen down. We called these people to us. We asked their New York representative to come to see us. He was quite upset about it. He brought his plant superintendent down, and for fear that the apparatus we used was not exact they brought their own with them, and they brought their own samples along from the factory. They carried out their own tests, and they threw up their hands, and I have a letter in my possession in which they assure us that after this they will give us what we pay for, and what we are supposed to get.

I was asked by one of the chief executives of R. H. Macy & Co. what we ought to do in the matter, and I said: "The best thing to do is to let bygones be bygones. If this manufacturer shows an honest effort to produce the goods hereafter we will forget about what has happened"; and that is the attitude we take. (Applause.)

Chairman Hayes—Are there any other questions you would like to ask Mr. Freedman?

I feel that every manufacturer will welcome an attitude such as he has set forth. I also feel that in case you do not get honest co-operation like that, every manufacturer—other manufacturers, anyway—would appreciate it if you would leave that manufacturer alone; and that brings out the same thought I tried to express a while ago: that a laboratory such as this would bring about honest competition between different manufacturing establishments; and that is what we all want.

President Killheffer—Mr. Chairman, may I say just a word in that connection?

It seems to me that this Association laboratory that we are trying to visualize would be of very great benefit for companies like R. H. Macy and others in their insistence upon having fabrics of a certain standard of fastness, when those standards are once known, because they could very easily—if this scheme comes to full fruition, as we hope it will—say to the manufacturers from whom they buy, "We want this particular fabric to be of Fastness A-3" (or A-4 or B-6, or whatever it might be) and make him certify that it is of that fastness; and we hope to have an institution that can so certify.

Chairman Hayes—Are there any other questions for Mr. Freedman?

There is another phase to this question of fastness which probably the retail store does not hit and which the manufacturer does not hit, but which the commercial laboratory, which has various problems brought to it, does hit. We have with us to-night Mr. Himbaugh, of the

Pease Laboratories, who will take up the attitude from the standpoint of the commercial laboratory. I am very glad to introduce Mr. Himbaugh. (Applause.)

[*The paper presented by Mr. Himbaugh will be published in a later issue of the Proceedings.*]

THE FORTY-FOURTH RESEARCH COMMITTEE MEETING

The forty-fourth meeting of the Research Committee was held at the Engineer's Club, Boston, Mass., on Friday, March 2, 1928, at 2.30 p. m.

The following members were in attendance: L. A. Olney, W. M. Scott, G. A. Moran, P. J. Wood, H. W. Leitch, John Hutton, Hans Meyer, Philip F. Ripley, Walter C. Durfee, Alden D. Nute, Karl Moore and W. E. Hadley.

Letters and telegrams of regret at not being able to attend were received from E. H. Killheffer, R. E. Rose, H. Christison, W. H. Cady, Howard D. Clayton, Ed. F. L. Lotte and W. R. Moorhouse.

L. A. Olney, chairman of the Research Committee, read several letters received from abroad acknowledging receipt of copies of Year Books and report of Light Fastness Trials, which had been sent out with the object of obtaining constructive criticism. A spirit of co-operation was manifest in the letters received, and the committee felt that the association was now approaching a position where international co-operation, as to the standardization of fastness methods, will be more rapidly realized.

The proposition of the 1928 Year Book was considered and the chairmen of the various sub-committees, whose tentative reports have appeared in previous issues of the Year Book, were asked to bring the reports as fully up to date as possible, in order that the progress which has been made might be properly recorded.

The question of standard tests, not already covered in preceding issues of the Year Book were considered, including Fastness to Rubbing or Crocking, Kier Boiling, Cross Dyeing, Decatizing or Potting and the Boiling-off of Silk.

Dr. Scott was asked to prepare a set of standard tests covering the Boiling-off of Silk, and present them at the next meeting.

Tests for Kier Boiling.—It was pointed out that very few colors will withstand kier boiling under pressure, and consequently the boiling is ordinarily done in the open kier. After considerable discussion, it was decided that no present need existed for fastness tests in regard to kier boiling, and that when the need did exist, the matter would be taken up further.

Tests for Cross-Dyeing.—These trials should cover the use of both acid dyes and mordant acid dyes, and their reaction to formic and acetic acids as well as to sulphuric acid.

Tests for Potting, Decatizing and Crabbing.—The matter of these tests is to be referred to Mr. Christison, chairman of the Committee on Fastness Tests to Dyed Wool.

The desirability of the society's recommending some definite type of apparatus for use in the washing tests was discussed. An apparatus devised by Mr. Appel, consisting of fruit jars securely held in a frame which revolves in a water bath, differs from one constructed by Mr. Christison where the fruit jars revolve in an air bath. Undoubtedly, illustrations and description of one or both will be published in the 1928 Year Book.

In both these systems the jars are so arranged that the contents fall from one end of the jar to the other, and back again during each revolution of the holder. In the testing of cotton material, small rubber cubes are placed in the jars to give a pounding action to the material, although these are not considered essential in the case of wool or silk.

Sixty samples of specially prepared colored material have been sent to the Laundryowners' National Association, where extended sets of washing trials are being conducted, and an accurate record kept of the procedure and results, samples being taken at the successive steps in the operation.

Mention was made of a Weather-o-meter, for stimulating the effect of weather, put out by the Atlas Devices Company, wherein the humidity and temperature can be controlled within narrow limits.

P. J. Wood pointed out, in connection with the plans for international co-operation, that, whereas it might be desirable for some of the members of the Research Committee to correspond individually with the members of foreign societies, who were undertaking similar trials to those being conducted by our Association, it would better serve the purpose of the Research Committee, if copies of such correspondence could be forwarded to the chairman of the Research Committee, in order that the different suggestions could be filed under one general grouping.

The Sub-Committee on Fastness to Light reported progress and stated that a set of the dyeings had been forwarded to England in order that tests might be conducted in the Fugit-o-meter. When the record of this work is prepared it will cover the use of Vitaglass and its action upon the short ultra-violet rays.

Dr. Scott is to make a study of tests relating to silk, and if any changes are deemed advisable, he will have same ready for the 1928 Year Book.

Mr. Moran reported progress in regard to the fastness tests upon cotton.

The committee voted to recommend to the Council that William C. Smith, now employed as Research Associate, be retained for another year.

Karl B. Moore and Walter C. Durfee presented a tentative questionnaire to be sent to members regarding the use of a card index, devised by the Findex Company, covering various properties of dyestuffs. The questionnaire will shortly be sent in order that an expression of opinion may be received in regard to its usefulness to the members in general.

W. E. HADLEY, *Secretary.*

Bleaching Cotton Piece Goods*

By J. T. YATES

Superintendent, Kerr Bleaching & Finishing Co.

My first impression of a bleachery was that bleaching was one secret process from start to finish. I later learned that such ideas were foolish, for, as we know, the vegetable fiber, cotton, has been here from the beginning of time. History teaches us the ancients used robes, veils and tents, and as to whether they were linen or animal fiber I have my doubts. The art of bleaching is of antiquity, although the method was crude. This at first consisted of repeated washings and dryings. We have record of the Gauls using an alkaline agent for cleansing and bleaching their fabrics. About the eighteenth century Holland almost held a monopoly of the bleaching trade in Europe. They would steep the fabric in lye, then in potash, then wash and steep the goods in buttermilk for several days. The buttermilk acted as sour or acid bath. This led to the discovery of a sulphuric acid treatment.

About this time chlorine was discovered, and subsequently a bleaching process for linen and cotton was discovered. You can readily see that bleaching cotton goods and its related process are not new. Cotton for the general purpose of manufacture does not have to be bleached. The impurities may be regarded as those substances other than cellulose which may be present, and include waxy and resinous matter. These impurities are not a hindrance to the manufacturing process, but are a considerable aid to carding and spinning, as they make the fiber more resilient. It is only previous to the bleaching process that these impurities must be removed, as cotton in its natural state is quite water-repellent. Aside from this, we have the size which has been introduced in the course of manufacture. We have dirt from handling, stains from coming in contact with operatives' hands and machinery.

Paper delivered at the meeting of the Piedmont Section of the American Association of Textile Chemists and Colorists held in Greensboro, N. C., January 21.

When cotton goods are received by a bleachery, they must be properly stored and handled to prevent damage of any kind until ordered into process, at which time the goods are examined for quality, width, length or defects of any nature. A sample is taken for reference, and the goods are then designated by lot numbers. Heavy goods are separated from light goods, then sewed into a continuous length, the seams being automatically stamped with its lot number with a bleach-proof ink. When there are enough goods by weight to make a kierful, the goods are next singed to remove the excess lint and strings from the face of the cloth. In this connection care must be taken not to get the goods too hot, for sometimes chloride of magnesium is used in the warp size and when heated has a tendency to decompose into free hydrochloric acid and hydrate of magnesium, with a consequent tendering of the goods.

The singeing process is eliminated on the lower class of goods. In either case the goods are run through a desizing bath and allowed to steep from twelve to twenty-four hours. From there they are washed into the kier and given an alkaline bath, which usually consists of about 3% caustic soda to the dry weight of goods. Sometimes a detergent or penetrating agent is added to the caustic charge. This depends mostly upon local conditions and the quality of water used. The kier is closed after loading and steam turned into the heating elements, and a pressure of about 15 pounds is allowed to accumulate and is maintained from twelve to fifteen hours; after which the goods are well washed and run through a solution of sodium hypochlorites, usually ½ to 2° Tw., then piled into bins and allowed to lay until the proper degree of whiteness is obtained.

The time depends upon the grade of cotton and previous treatment; for, as we all know, some grades of cotton (such as blue bender) seem impervious to any bleaching agent. When the proper bleach has been attained, the goods are washed and given an acid bath to neutralize any remaining bleaching agent, then through another wash and piled into white bins ready for the mangling, starching and drying process.

FEBRUARY MEETING OF RHODE ISLAND SECTION

The joint meeting of the Rhode Island Section of the American Association of Textile Chemists and Colorists and the Rhode Island Section of the American Chemical Society was held in the Jesse Metcalf Laboratory, Brown University, on Friday, February 10, 1928, at 8.15 p. m.

The speaker was M. J. Rentschler, general manager and director of the J. H. R. Products Company, Willoughby, Ohio, the largest manufacturer of peroxide

products in the United States. His subject was "The Peroxides: Their Manufacture, Properties and Practical Uses."

Mr. Rentschler's work with peroxides is one of the romances of modern industry, and the evening was thoroughly enjoyed by the sixty-five members who were present.

Mr. Rentschler has already addressed the Cleveland Section of the American Chemical Society, as well as the Chicago Section.

An informal dinner was held at the Brown University Faculty Club, 13 Brown Street, preceding the meeting.

A. N. DANA, *Secretary.*

Applicants for Membership

Active Membership

Bolen, Wiley Paul, dyer, Hickory Spinning Company, Hickory, N. C. Sponsors: C. H. Stone and D. C. Newsome.

Cosby, John C., salesman, Ciba Company, Greensboro, N. C. Sponsors: J. D. Sandridge and H. A. Barnes.

Fieldhouse, C. B., demonstrator, Ciba Company, Chicago, Ill. Sponsors: A. T. Brainerd and Wm. E. Mitchell.

Glenn, Robert W., manager, Greensboro office, Ciba Company, Inc., Greensboro, N. C. Sponsors: J. D. Sandridge and H. A. Barnes.

Lefort, Ernest J., demonstrator, Ciba Company, Inc., Greensboro, N. C. Sponsors: J. D. Sandridge and H. A. Barnes.

Ruston, Norman A., demonstrator, Ciba Company, Inc., Chicago, Ill. Sponsors: A. T. Brainerd and J. G. Stott, Jr.

Wille, Clarence W., dyer, Burson Knitting Company, Rockford, Ill. Sponsors: Ed. Weber and James Hyde.

Junior Membership

Dubray, Edgar E., bleacher, Nashua Manufacturing Company, Nashua, N. H. Sponsors: L. A. Olney and A. K. Johnson.

Gross, Herman, student, Lowell Textile Institute, Lowell, Mass. Sponsors: L. A. Olney and A. K. Johnson.

Hooper, Clarence, overseer of dyeing, Waynesboro Knitting Company, Waynesboro, Pa. Sponsors: L. A. Olney and W. E. Hadley.

Changes of Address

Bachelder, C. E., Slatersville Inn, Slatersville, R. I.

Barnard, Kenneth H., Shawsheen Village, Mass.

Benedix, Geo. W., General Lenoir Hotel, Lenoir City, Tenn.

Callahan, Cornelius, 14 Melville Street, Worcester, Mass.

Clay, Tom, West Warwick, R. I.

Coplin, J. E., Victor Monaghan Mills, Greenville, S. C.

Davis, Mark L., 1019 Downer Avenue, Utica, N. Y.

Govier, G. Van Tromp, 1122 St. Marks Place, Plainfield, N. J.

Gyzander, Arne K., 300 State Street, Rochester, N. Y.

Jacoby, Morris, 467 East Thirty-third Street, Paterson, N. J. Business address: Somerset Aniline Works, Pluckamin, N. J.

Kershaw, James W., 396 Central Street, Mansfield, Mass.

Kidd, Thomas S., 295 Terhune Avenue, Passaic, N. J.

Lewis, Donald R., 45 Highland Avenue, Westerly, R. I.

Maher, Charles E., Nyanza Color & Chemical Company, Chicago, Ill.

McNab, William Sidney, 1210 Gen Building, Knoxville, Tenn.

Millea, M. J., 5604 Highland Street, West Duluth, Minn.

Morrill, Elliott, chemist, Rit Products Corporation, Chicago, Ill.

Nute, A. D., Box 544, Fall River, Mass.

Peterson, Henry F., 71 West Merrimac Street, Manchester, N. H.

Potter, C. D., 1606 South Boulevard, Charlotte, N. C.

Robinson, Ernest W., Rockville, Conn.

Smith, Harold D. W., care of American Church, Motzstrasse 6, Berlin, Germany.

Smith, William C., 3614 Connecticut Avenue, Washington, D. C.

Snoop, John, 141 East Fifth Street, Bayonne, N. J.

Vieira, N. R., Newport Chemical Works, Passaic, N. J.

Volk, John, Box 426, Belmont, N. C.

Waples, J. Edward, Box 449, Ashland, Mass.

Winkler, Adolph, 26 Spring Dell, Rutherford, N. J.

Wisdom, Roy H., 185 North Street, Stamford, Conn.

Wood, Lawrence B., Lowell, Mass.

Resignation

Amos K. Hobby, Boston, Mass.

AMERICAN
DYESTUFF REPORTER

Devoted to the use and application of dyestuffs and the mechanical equipment incidental thereto.

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PROFESSOR OF CHEMISTRY AND DYEING, LOWELL TEXTILE SCHOOL
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Published biweekly by
HOWES PUBLISHING CO., INC.
90 William Street, New York City

A. P. HOWES, *President* E. S. PREDMORE, *Secretary*

Subscription price $5.00 per year; Canadian $5.50; foreign $6.00

Vol. XVII March 19, 1928 No. 5

THE TEXTILE ALLIANCE FUND—DESTINED FOR WHAT?

FOR some time far-sighted individuals and groups have been preaching the need of fundamental research in the textile industry. While their efforts have been rewarded by a growing interest on the part of textile manufacturers, that interest has not, so far as we are aware, developed sufficient individual or group consciousness of the financial responsibility on the part of the industry to give any such project even sufficient momentum for a fair start. It is this situation that invests with such importance the bill introduced in Congress on March 6, providing for the establishment of a Textile Alliance Foundation.

As most readers of the REPORTER know, the Textile Alliance was appointed by the Government shortly after the armistice to direct the sale in this country of reparations dyes from Germany. A non-profit-making corporation, it accumulated in the course of its operations a surplus of more than $1,300,000. An agreement made with the State Department several years ago provided that this sum be devoted to scientific research or education.

This worthy object has now been more specifically defined by the terms of the bill reported to the House by Representative Schuyler Merritt of Connecticut. This bill proposes to establish a foundation to administer the Textile Alliance fund for "scientific and economic research for the benefit and development of the textile industry and its allied branches." The directing board of this foundation as outlined in the measure would consist of the Secretary of Commerce as chairman, the director of the Bureau of Foreign and Domestic Commerce, the director of the Bureau of Standards and "four individuals familiar with the textile industry." The duties of this proposed foundation are not expressly defined; the manner of administering the $1,300,000 research fund is left entirely to the discretion of the board of directors.

Now the first concern of trustees empowered to apply such a large sum to textile research should be, we take it, to finance the most urgent and important need of the industry. To those at the fore of the research movement and to all others who have studied the matter that need is without question fundamental research.

It is this type of research which has been neglected more than any other so far as textiles are concerned, first because it promises no immediate tangible results, and second because those agencies best equipped to pursue such research have lacked adequate funds. These conditions have not checked other types of research work. Economic or "trade" research has been undertaken by various textile associations adequately supported and ably fitted for that form of study. Applied industrial research is being carried on in the laboratories of a few large corporations for their individual benefit. This type of work, while essential and praiseworthy, has a more direct and immediate appeal, and will therefore find the necessary support more readily than the fundamental type of scientific research, both chemical and physical, of such a character as to be of direct application to the textile industry.

This truth should and undoubtedly will be apparent to any directing board appointed to manage the Textile Alliance fund. Particularly ought this to be the case if a devotee of "pure science" research like Secretary Hoover sits on the board. Nevertheless there is good cause for some apprehension over the manner in which the Alliance fund may be handled under the terms of the Merritt bill. There is good reason to inquire if this fund will be so distributed that it will most effectively advance fundamental research.

One reason for bringing up this question is that the powers of the proposed foundation are left too loosely defined by the bill; its terms as worded, for instance, provide equally and without discrimination for both scientific and economic research. A second reason is that the appointment of three officials of the Department of Commerce to the foundation's board of directors would tend to invest its operations with a political character which, under certain circumstances, might be decidedly undesirable.

These objections are not so trivial as they may sound. They imply that this measure devised for using the Textile Alliance fund for research, framed we feel sure with the best intentions, is far from foolproof. If the Merritt bill is adopted in its present form, what assurance is there that the considerable sum of money transferred to the foundation will go to support those agencies best qualified to pursue fundamental scientific research for the benefit of the textile industry? Furthermore, how sure can one be that a large proportion of the income will not be spent

to support work that would be adequately supported by funds from other sources if the Textile Alliance Foundation had not come into existence? The fact is, interpreting the bill according to its letter rather than its spirit, there is little assurance that such situations will not follow. Only the good judgment and discretion of the board of directors would save the fund from being scattered in so many small amounts as to lead to no resultful end. But more likely and of even graver result would be the release of all or most of the money to only one or two research agencies, governmental or otherwise, to the exclusion of several that are equally deserving of such support.

Still another channel into which part of this precious fund may be injudiciously diverted is the financing of *economic* research. In fact, as we have noted, this use of the money is expressly designated in the Merritt bill. Possibly its framers were unaware of the elaborate market and statistical studies being carried on by various textile institutions and trade associations formed for the commercial development of the industry. While the Textile Alliance fund might properly supplement their work, there is no reason why it should relieve them of the necessity for financing their own projects along similar lines.

So much, then, for the loopholes through which the large research fund now available may dribble away if it is not fairly and efficiently applied to what is admittedly the paramount need of the American textile industry. Our reason for indicating these should not be misinterpreted. There is no intention here to riddle the idea of establishing a foundation to handle this fund. That idea is demonstrably sound. But the duties of the foundation as proposed in the Merritt bill call for much more explicit definition than that bill supplies.

On the other hand, it might be said that it is far better that the bill should err in this way rather than to be rigidly specific along undesirable lines. As it is, the dispensation of the income from the fund appears to be left entirely to the trustees; much, therefore, depends upon their judgment and insight into the urgent needs of the industry so far as research is concerned.

Granting that the sum entrusted to the foundation can be devoted to no higher purpose than the financing of fundamental textile research, one guiding principle seems clear: the money should be apportioned fairly among those agencies competent to undertake that type of research work successfully, and no part of it appropriated for use by agencies that are unqualified for such work by reason of their lack of experience in that particular field.

Actuated by this principle, those entrusted with the investment of the fund would do well to count among the more deserving research agencies those textile schools of high standing, with adequate facilities and personnel, that have heretofore been limited in their efforts to pursue fundamental research by lack of funds. They might also allot a reasonable proportion of the income from the fund to the United States Bureau of Standards, which has performed some creditable textile research work. And they might also grant another portion to the Research Committee of the American Association of Textile Chemists and Colorists, which, through its personnel and through other connections with the textile industry, is, we believe, unquestionably qualified to receive full recognition as a well-organized body working earnestly to advance scientific research in textile chemistry and dyeing.

With its administration of the fund determined, the duties of the Textile Alliance Foundation could assume a new direction and an even higher purpose. For the foundation would be strategically placed to assist in encouraging the textile industry to contribute to a much larger fund that will be needed to amplify the work thus made possible. Because it has suddenly fallen heir to a legacy, so to speak, is no reason for the textile industry of this country to sit back and evade its duty of perpetuating its scientific research work. That duty should have been perceived a long while ago anyway. With foreign textile interests continually broadening their research efforts, there is every incentive for the American industry to provide for an adequate program of fundamental research. Every precaution should be taken, therefore, to assure that the Textile Alliance fund will be employed as the nucleus of that greater provision which must eventually be made.

P. J. COLLINS TO MANAGE BOSTON OFFICE OF JOHN CAMPBELL

The new manager of the Boston branch of John Campbell & Co. is P. J. Collins, who recently took up his duties as successor to John H. Grady. Mr. Grady resigned to assume new duties in a rapidly growing textile mill.

Mr. Collins has been a prominent figure in the dyestuff industry for the past thirty-three years, and it is his aim to continue to serve the textile industry in his new connection with the same efficiency that has gained him his position in the trade. His headquarters will be at 287 Atlantic Avenue, Boston, the address of the John Campbell & Co. office for several years. His many friends in the trade will wish him continued success.

Dr. Walter M. Scott, formerly chief chemist for Cheney Brothers, silk manufacturers, and more recently technical adviser to the sales department of the National Aniline & Chemical Company, Inc., has resigned from the latter position to become sales manager for the Munsell Color Company, 10 East Franklin Street, Baltimore, Md. He will devote himself to the commercial application of the new systems of color evaluation and specification developed in the research laboratory of this concern.

EXTRACTORIALS

If scientific research in other countries were obtainable in Canada free; if we could get all the scientific knowledge we wanted from Germany, Great Britain and the United States for nothing; if we did not need to spend a dollar to learn all we require to know with regard to science and industry, I would still be in favor of voting money for industrial research. The opportunities in this Dominion of Canada for work in pure science, for work on specific problems, are so great that if we vote the money necessary we will create opportunities in scientific courses for probably 50 per cent of the graduates of our universities.—*Hon. James Malcolm, Canadian Minister of Trade and Commerce.*

The time must come, and it should come soon, when the leading men in various colleges who have proved their aptitude for teaching shall be so generously compensated from the endowed professorships that they need not be tempted to move to less congenial surroundings in industrial work.—*Editorial, Chemical and Metallurgical Engineering.*

In addition to a vast amount of applied research, your company has always carried on a certain amount of fundamental chemical investigation. Since it is so essential to the development of the art, it has recently been decided to place increased emphasis on fundamental research. . . . A personnel especially adapted to carrying on investigations of this nature, and selected with particular reference thereto, has under investigation definite problems in the category of fundamental research.—*Annual Report for* 1927, *E. I. du Pont de Nemours & Co.*

Artificial silk in the near future is certain to be far stronger than cotton. Quite possibly it will be used in the manufacture of motor-car tires and airplane fabrics. It has regularity, covering power and strength, and it is as near as can be got to the ideal textile fabric.—*Major A. B. Shearer, English Textile Expert.*

It is useless to fight changes in fashions. It is more economic to quickly recognize them and regard none of them as perfect but all as progressive.—*C. W. Barron.*

Resist the temptation to go into commercial production before you are really ready. Under no circumstances undertake a new project until you are prepared to continue active research which will make it impossible, or at least extremely difficult, for another group to be enough better trained to displace you.—*Editorial, Industrial and Engineering Chemistry.*

There is already overcapacity in the textile field, but that does not prevent new cotton mills from going up in the South, where new methods and new conditions give these mills a competitive advantage. . . Thus the question is not so much one of overcapacity as it is one of whether there is any chance of improving on existing methods and conditions. After all, a large part of the business of the country is constantly due to the replacement of old things by new.—*National City Bank Letter.*

Testing departments are already maintained by leading stores, and, no doubt, they serve a useful purpose. But the small retailer is not able to operate on such a basis, so is more or less at the mercy of his supplier, and it would seem that he is more protected in the handling of branded merchandise than he should be with goods not bearing the manufacturer's or other identification label. —*Canadian Textile Journal.*

There is no hope for mills with old and worn-out machinery, nor is there any excuse for such mills. The owners can get skilled men if they are not already on the job, and with such men it is no hard task to get modern machinery.—*Editorial, Fiber and Fabric.*

The thing that can bring America into pre-eminence is the elimination of the copying habit. Copying can lead to nothing but price wars, close-cuts and bad times. Creation leads to the development of a vitality that is essential to the success and prestige of any industry or art.—*Ward Cheney.*

Current demands for better quality, more style and color, also for more variety in products, are natural consequences of greater individual prosperity. They are among the first evidences of the arrival of a higher standard of living and as such are not to be deprecated.—*Technical News Bulletin of the Bureau of Standards.*

NATIONAL SURVEY OF RESEARCH IS UNDERTAKEN BY COUNCIL

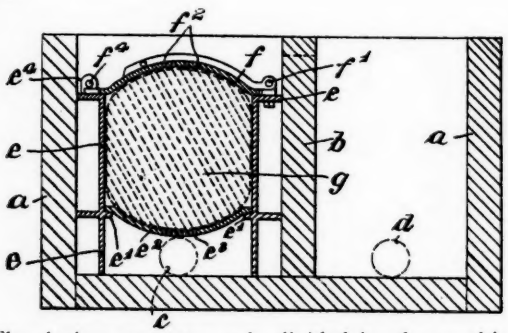
It has been asserted by various authorities that American industry spends $200,000,000 annually on research, and that 1,000 research laboratories are operating in the United States at the present time. How this extensive activity may be interpreted by financial, industrial and business leaders who are interested in the application of science to industrial problems is the question that the National Research Council has undertaken to answer with a survey of research begun a few weeks ago.

This survey will be conducted on the basis of replies to questionnaires sent to 5,000 of the largest manufacturing companies in the United States, according to Maurice Holland, who has been appointed to direct the study. Its aim will be to obtain accurate and thorough information regarding the research facilities available to particular industries.

Technical Notes from Foreign Sources

Dyeing Carded Wool Bobbins

The purpose of the invention which is shown in the accompanying illustration, and which is patented in German Patent No. 443,336, is to avoid tightly packing a number of bobbins into a chamber or vat and to avoid the loss of time which is caused by the use of dyeing apparatus with a single chamber. Under these conditions the dye liquor flows through the bobbins transversely to the axis of winding. The intermediate disadvantageous free spaces are avoided, however. For this purpose the bobbins are placed in a chamber which is built so as to fit, and which is provided with a cover and other essential parts.



The dyeing apparatus *a* is divided by the partition *b* into two longitudinal chambers, one of which is connected by a pipe *c* with the circulating pump. Two side walls are built from end to end of the other chamber and are shown at *e*. These walls are provided with flanges or ribs at certain heights. Two sets of these flanges support the bottom plate e^2. The bottom plate is curved downward and the cover *f* is curved upward, as may be seen from the figure. Two openings, f^2 and e^3, are provided only at the uppermost and lowermost parts of the cover and the bottom plate, respectively, for the entrance of the dye liquor. The bobbins *g* are arranged with their winding axes horizontal in such a manner that they completely fill the trough. A slight pressure on them will cause them to fill the trough tightly.

The dyeing is effected by circulating the dye liquor through the bottom opening e^3 upward through the bobbins and out through the opening in the cover f^2. The liquor is therefore forced through the entire mass of materials wound on the bobbins, for the reason that there are no free intermediate spaces and a certain resistance is built up within the interior of the bobbin, inasmuch as there are only two entrance and exit openings, both located in the center of the apparatus.

Detecting Mercerized Cotton

It is not always an easy matter to detect the presence of mercerized cotton or other vegetable fibers from the unmercerized, for the reason that calendering and other technical treatment can materially improve the appearance of the fiber. Mercerized cotton possesses, however, increased affinity for dyestuffs, increased hygroscopicity and the like, which properties may be used in detecting the fiber. Thus, dyeing with Benzopurpurin 4B, with the simultaneous addition of hydrochloric acid, will give a reddish-violet color on fiber and the degree of mercerization can then be determined from the depth of color.

Another test depends on the behavior of mercerized cotton toward a solution of zinc chloride and potassium iodide solution. The latter is obtained by dissolving 20 grams of iodine in 100 c.c. of potassium iodide solution. Both mercerized and ordinary cotton tested with this solution will take on a bluish-black color. When the samples are washed, it will be found that the mercerized cotton will remain a dark-blue color, while the unmercerized will wash out, becoming quickly a light blue and finally white.

Mercerized cotton, linen, hemp and other fibers can be easily detected from the non-mercerized variety by the following method: A very dilute solution of Methylene Blue is first prepared, containing only 0.01 gram per liter. This solution contains 5% sodium carbonate. A small amount of this solution is placed in a test tube, a piece of the fabric under examination placed in the tube and a 3% soda solution is added. Finally a few drops of a solution of iodine is added, and the mixture is boiled. The solution is then poured out of the test tube and the sample of goods treated in a test tube with a cold solution of sodium carbonate. Mercerized fabrics will be colored purple under these conditions and the unmercerized will become blue to greenish blue. When the degree of mercerization is not so high, the purple will have more or less of a reddish cast.

The first solution used in this test must be heated for a short time only, as otherwise a part of the dyestuffs will be easily dissolved from the fiber. The purple color is formed after slightly heating the sample. The depth of the color will afford an idea of the degree of mercerization. (Deutsche Faerber Zeitung, 1927, page 1054.)

Progress in Wool Dyeing

In comparison with cotton and rayon dyeing, the progress in wool dyeing during the past forty years has been inconsiderable. The use of alizarine colors is of great importance both in dyeing wool in the yarn and in the piece goods form. In dyeing chrome-mordanted wool, faultless temperature control is required. The shading of the dyed wool can be accomplished with the aid of easily soluble dyestuffs which are fast to chrome. The ideal ground on which to dye wool is a pure fiber in any form,

free from oils, fats and impurities that contain fats. Any method of dyeing is impaired by the use of hard or impure water when particularly the soluble mordant and acid dyestuffs are employed. Lime stripes are due to unclean material in rare cases only. (Der Textilechemiker und Colorist, 1927, pages 142-143.)

AMERICAN ANILINE SALES STAFF VISIT PLANT

The entire selling organization of the American Aniline Products, Inc., including all sales managers from the different branches, recently held a convention at the company's plant at Lockhaven, Pa. The day's program included a thorough tour of plants Nos. 1 and 2, and many of the men were greatly impressed with the various operations of bulk dyestuff manufacture and with the plant equipment.

In the evening the staff gathered at the dinner table, and during the dinner the chemical director was presented with a handsome gift. Talks were given by B. R. Armour, president of American Aniline Products; G. L. Armour, vice-president and general sales manager, and William Weckman, secretary.

Plans are now being laid to celebrate the twentieth anniversary of the firm, which will take place next January.

TEXTILE WEEK CELEBRATION AT NORTH CAROLINA STATE COLLEGE

Program of Interesting Talks Announced

On March 27, 28 and 29, during the annual textile week, the Textile School of North Carolina State College will conduct a textile institute. A number of textile men, each of whom is an authority in his particular field, have accepted invitations to speak. Dean Thomas Nelson of the Textile School announces that mill executives and others connected with the industry will find it to their advantage to attend every session.

Dr. W. R. Cathcart, of New York City, technical director for the Corn Products Refining Company, will talk on "Starches." The Cotton Textile Institute will be represented by E. C. Morse, who will speak on "New Uses for Cotton." I. L. Langley, head of the cost department for the Consolidated Textile Corporation, will deliver four lectures on "How to Figure Individual Fabric Cost." W. S. Dean, formerly with the United States Department of Agriculture, will speak on the "Technique of Buying and Assigning Cotton for Manufacturing." Mr. Dean is now Cotton Buyer for the Rosemary and Roanoke Mills at Roanoke Rapids, N. C. Hill M. Hunter, purchasing agent of the Proximity, White Oak, and other mills of the Cone Export and Commission Company, will talk on "Purchasing for Cotton Mills." W. B. Hodge, vice-president of the Parks Cramer Company, will use as his subject, "Humidification of Mills."

On Thursday afternoon, the third day of the textile institute, the annual students' exhibition will be held. The textile school will be converted into an exhibition room and all machinery will be operated under student supervision.

SPRING COLORS HARMONIZED IN COLOR CARD ASSOCIATION CHART

Seasonal colors for millinery and garments, shoes and hosiery are charted to illustrate appropriate combinations in the latest Chart of Color Harmonies for Spring and Summer, 1928, compiled by Margret Hayden Rorke, managing director of the Textile Color Card Association, and recently issued by the association. A separate chart is a key to the hosiery colors, indicating their proper application to each shoe color on the main chart.

On the Color Harmonies chart the new shades on the 1928 spring season hosiery color card are printed in red to distinguish them from the other colors which appear on the Standard Hosiery Color Card and the 1927 Spring and Fall Hosiery Color Cards.

The regular Spring Color Card was issued by the Color Card Association a few weeks ago with a supplement of fourteen shadow shades. The regular card contains eighty-eight shades, ranging from tea rose and shell pink to certosa and rose beige No. 2. Only one number appears for each color, this serving as both the cable number and the color number. The new shadow colors range from a mauve blush to faded rose, with an interesting group of intermediate shades. The Wool Color Card comprises forty-four shades and especially features several of the season's most distinctive colors, such as wild iris, seacrest, jadesheen, colonial rose and troubadour red.

The Spring Hosiery Card for 1928 displays dyeings of nineteen shades, and in addition twenty-two other shades are recommended, these latter having appeared on previous Standard and seasonal cards.

INDEX OF CHEMICAL FOUNDATION PATENTS NOW COMPLETE

May Be Consulted by Industrial Firms Seeking New Uses for Products

A project of great value to every American manufacturer who produces chemicals in any form has been completed, after two years of intensive effort, by the Chemical Foundation, Inc., of New York. Indexes have been compiled that will give immediately any information concerning the Foundation's patents. Every reference of possible value has been concisely abstracted and card-indexed. These references comprise Inventors, Assignees, Chemicals, Processes, Apparatus, Uses, Foreign and United States Patents, etc.—everything, in fact, except book and journal references to the patents owned by the Chemical Foundation.

This indexing makes available a mass of fundamental data in convenient form for reference by anyone who has necessity to use it. The new indexes are open for consultation by any firm at any time; lists

of references on the subjects in which any manufacturer may be interested may be obtained. Copies of the patent specifications will be loaned for examination and the Chemical Foundation will gladly render any assistance requested.

In finding new uses for old products, or for waste and by-products, the new subject index has been of considerable aid to several firms. All manufacturers and research men are advised to ascertain as soon as possible whether these patents contain material of value to them, and all literature investigators, says the announcement from the Foundation, should in future include these indexes in their searches.

NEW NEWPORT PINK HAS VARIED USES

A dyestuff announced by Newport Chemical Works, Inc., under the brand name of Newport Rhodamine B Extra, is described in a recently issued leaflet as a valuable color for lakes, lacquers, leather and paper dyeing. The leaflet tabulates its fastness properties and displays the color on swatch bows of wool, silk and rayon. This color is distinguished, according to the announcement, for its high purity, its brilliance of shade and good solubility. Processing both basic and acid properties, it is applicable to all textile fibers. It is also recommended for printing and colored discharge effects.

TWO NEW PONTAMINES DEVELOPED

Two additions to the Pontamine series of dyes and a new Setamine color have been developed by the Dyestuffs Department of E. I. du Pont de Nemours & Co. and are now being marketed under the brand names of Pontamine Light Gray BV, Pontamine Fast Red 8BLN ad Setamine Scarlet 3B.

The Pontamine Gray, an entirely new discovery and development of the Du Pont research laboratories, is described as a direct dyeing color that produces bluish grays of excellent fastness properties, especially to light. It is further said to have good solubility and to be level dyeing and suitable for all types of machines.

Pontamine Fast Red 8BLN is a direct dyestuff that produces brilliant shades of bluish red. It is of particular interest, according to the description, for the dyeing of cotton in all stages of manufacture where good washing fastness is required.

The new Setamine Scarlet 3B is especially suited for dyeing tin-weighted silks in the piece because it is said to possess excellent covering power and to dye extremely evenly. Its fastness to scooping and steaming is described as very good.

The John Johnson Turbo-Mixer Corporation has leased a suite of offices in the Woolworth Building, New York City, as general offices of the corporation. In addition, an extensive laboratory has been leased nearby for research development and experimental work in connection with the mixing problems of the many industries served by this corporation.

H. P. Babbitt, of Providence, R. I., is now associated with Bosson & Lane, Atlantic, Mass., as sales representative and demonstrator. Mr. Babbitt has been among the mills of New England, Pennsylvania and New Jersey during the past ten years, following practical textile manufacturing in which he had been engaged.

Oscar F. Muller, formerly manager of the Boston branch of Nyanza Color & Chemical Company, has been appointed sales manager of that firm and is now located at the main office, 215 Water Street, New York.

The rate for "Position Wanted" advertisements in this column is 2 cents a word—with a minimum of 50 cents per insertion. For all other types of advertisements—i. e., help wanted, machinery or supplies for sale—the rate is $5.00 per column inch or less per insertion.

SALESMAN-CHEMIST

Salesman-Chemist, with intimate knowledge of finishing and bleaching textiles, required for introduction of a new chemical in the textile industry. The product, although new in this country, has had wide application abroad and is being launched in this country by factors with ample financial resources. An excellent opportunity. In reply state age, education, experience and salary desired. Address: Classified Box 449, American Dyestuff Reporter.

BLEACHERY SUPERINTENDENT

Of twenty years' experience seeks an exacting position with a progressive concern handling cotton, rayon and Celanese piece goods. Is well versed in modern management and has a wide and thorough knowledge of bleaching, mercerizing, dyeing and finishing for this class of trade. Will go anywhere on short notice. All correspondence held in confidence. Reference. Address Classified Box No. 450, American Dyestuff Reporter.

SALESMAN WANTED

Well known established concern manufacturing complete line of colors and chemical specialties offers splendid opportunity to one or two experienced men to cover Middle West territory. State full particulars. Address: Classified Box 451, American Dyestuc Reporter.